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1891
AURORA PUBLIC SCHOOL.

COURSE OF STUDY

AND

Manual of Instruction.

Published by order of the Board of Education.

AURORA, ILLINOIS :
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WM. B. POWELL.

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Aurora

AURORA, ILLINOIS,
December 27, 1875.

TO THE BOARD OF EDUCATION,

Gentlemen:—I herewith present a copy of the Course of Study now used in the schools under your charge and respectfully call your attention to the desirableness of having it printed.

This course has grown up in the schools. It is therefore a development, a result of class-room work, and is, as nearly as it can practically be made, an exact copy of the work now done. The class that will enter the high school at the close of the current year will have completed the work of the nine grades preceding the high school course, with the single exception of the last three months of Plant work. Succeeding classes will complete the entire course without difficulty.

Much of the work, as you know, is done without prescribed text-books in the hands of the pupils. It is believed, however, that, if you should at any time think best to have pupils use text-books in more studies than now, the details, herewith submitted, in print, will be of great assistance to teachers—enough to warrant their publication as a manual. This is not an oral course, except so far as it applies to pupils too young to read. Our pupils use books more, and much more intelligently, now than when lessons were assigned them from prescribed text-books. As the use of prescribed texts but limits the extent and value of the pupils' book work, there is the more need of a definite outline of what should be accomplished in each subject by each grade of pupils.

The time and care given to this course of study during its growth warrant the belief that its various parts are so arranged as to be readily adjusted to the changing and growing needs of a vigorous school. The course is indeed arranged by grades and is subdivided into terms', months', and, in some instances, into weeks' work; but it is not expected that all teachers can, at any time, or that any teacher can, at

all times, do the work as prescribed. The varying conditions of time and weather, of health, ability, and disposition, absolutely preclude the possibility of this. The subjects are arranged separately, and the divisions into terms', months', and weeks' work are but the expressions of opinion, after a test of nearly five years in most cases, as to how much can be done by good teaching, with an average class, under favorable circumstances.

Your intelligent arrangement of teaching and supervising forces renders it possible for principals to know the exact condition of each grade of pupils at all times, the possibilities and probabilities of each teacher, and they are expected to adjust the course to the circumstances of each class under their supervision.

If the teacher is inexperienced, the principal should indicate, month by month, or term by term, at most, what ought to be accomplished in each branch of study.

If the teacher has had experience attended with success, and is acquainted with the school to be taught, he and the principal, in consultation, should determine what and how much to do, the teacher representing the children in their exact condition, and the principal representing the interests of the general system of instruction and the purpose of the school. These decisions should be subject to prompt revision as soon as an error in judgment has been detected.

The arrangement of this course of study renders such management possible and easy, without unnecessary complication, or disarrangement of system.

What has been said respecting the growth of this course of study does not apply to all of *Form Work*, or *Drawing*. Our experience in the use of cards and books has been unsatisfactory. True, our pupils could copy pictures very cleverly on paper, slate, or blackboard; but when tested properly, it became painfully apparent that their skill with the pencil, their culture of hand, their taste and judgment, were not at all commensurate with the time and labor expended. This led to the conclusion that either we, the teachers, must be taught by competent persons how properly to use cards and books, must abandon the study of

drawing as impracticable, or must adopt some other means of teaching the subject.

The first was impossible under the circumstances. The second we could not believe, while retaining the opinions we hold concerning the demands and possibilities of child natures; the obligations the schools are under to supply these demands and realize these possibilities; and the close relation that *Form*, its production and application, sustain to the truly practical in mind development, as well as to the truly useful in the many industries of our time and country. The last course only was left to us. The wisdom of our present system of teaching is attested by the results of the work done. The work assigned to the upper grades is taken largely from *Smith's Manual* and has not yet been well tested. As it occupies but little room, I have thought best to present it with the rest of the work.

The course in *Penmanship* is not given, because it was thought unnecessary to occupy the space. We use the customary graded series of books from 1 to 7 inclusive, completing the course in the eighth grade. In the ninth grade, *Single and Double-Entry Book-Keeping* takes the place of penmanship. This is given as much to secure good writing independent of copies, as to impart information in book-keeping.

A course in *Music* is not given because I am not prepared to make definite suggestions based on experience. By supplementing the graded series of books in use we secure fair results. The supplemental work, however, has never been definitely arranged. I fear that our success is due to hard work and enthusiasm rather than to system.

To outline the high school course in full requires more space than can be given in this volume. It is, therefore, given in brief outline only, with the single exception of *Language* which is given in full.

The course herewith presented has been the ground-work for study in the post-graduate course devoted to normal training since the establishment of the *Normal Department*. It has been the object, in both the theory and training branches of this department, to prepare teachers to do good work

under careful supervision, rather than to make superintendents or mental philosophers of them,—to make skilled journeymen who, under the guidance of foremen and superintendents, should be able to do acceptable work, rather than to make master mechanics.

By a year's earnest application, students, who have completed our academic course of study or its equivalent, acquire a comparatively thorough knowledge of the order in which each branch of study should be presented and, to some extent, of the relative importance of the various branches of study and of the different series or other divisions of the same.

By the practice and critical training we are able to give them, pupil-teachers become skilled in presenting the various branches of study in their different stages of advancement, and skilled, also, in the management of classes and rooms.

The character of the teaching now done in the different grades of our school, in respect both to quality and uniformity, is such as to warrant the continuance of the *Normal Department* on its present basis.

I desire in conclusion to express my grateful thanks for the valuable assistance given me, in the preparation of this *course*, by my associates in the school.

Without their aid my labors would have been immeasurably increased, if indeed I could have succeeded at all. Mrs. L. Hood, Miss M. E. Keyes, Miss L. E. Denney, Miss Eva Covalt, Mr. W. S. Mack, Mr. George Shears and Miss B. B. Snow have aided me very greatly.

I will mention especially Frank Thorwarth who has given much assistance in copying, Mr. T. H. Clark, Principal of High School, whose careful watchfulness has prevented many errors in plan and detail, and Miss E. J. Todd, training teacher, who has prepared a large part of the work of the primary grades.

I am, with high esteem, your obedient servant.

W. B. POWELL.

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ERRATA.

Page 21, first line, for explosive read *expulsive*.

Page 209, after CETACEA for (FOUR WEEKS) read (TWO WEEKS.)

E A D I N G .

FIRST YEAR.

- 1st Term.—Charts (from 75 to 100 words) and 60 pages of
First Reader (first book.)
2d Term.—First Reader (first book) finished.
3d Term.—First Reader (second book) finished.

SECOND YEAR.

- 1st Term.—Second Reader (half of first book.)
2d Term.—Second Reader (first book) finished.
3d Term.—Second Reader (half of second book.)

THIRD YEAR.

- 1st Term.—Second Reader (second book) finished.
2d Term.—Third Reader (first book) to page 100.
3d Term.— Same to page 159.

FOURTH YEAR.

- 1st Term.—Third Reader (first book) to page 223.
2d Term.— Same finished in advance.
3d Term.— Same first half reviewed.

FIFTH YEAR.

- 1st Term.—Third Reader (first book) finished in review.
2d Term.— Same (half of second book.)
3d Term.— Same finished.

SIXTH YEAR.

1st Term.—Fourth Reader to page 66.

2d Term.— Same to page 97.

3d Term.— Same to page 137.

SEVENTH YEAR.

1st Term.—Fourth Reader to page 179.

2d Term.— Same to page 225.

3d Term.— Same finished.

EIGHTH YEAR

1st Term.—Fifth Reader to page 94.

2d Term.— Same to page 127.

3d Term.— Same to page 173.

NINTH YEAR.

1st Term.—Fifth Reader to page 233.

2d Term.— Same to page 281.

3d Term.— Same finished.



CHART WORK.

THE FIRST READING LESSON.

General Object.—To cultivate the mental faculties and give information.

Secondary Object.—To teach reading.

Specific Object.—To develop the idea of the word *boy* and teach pupils to recognize and spell it.

Preparation.—Before the hour of recitation, the teacher should print the word *boy* with other words many times on the blackboard.

When the pupils are to recite, they should be arranged in front of the blackboard and charts, so that the word to be learned can be seen by each.

The Real Boy.—Select from the class a boy, place him before the pupils, and ask them to state, what is before them, or what they see, as: That is a boy; I see a boy. Then by easy yet careful questioning obtain answers something like the following: The boy has eyes; The boy has feet; The boy has ears. The teacher then asks what the boy can do with his eyes, feet, ears, etc., and obtains: The boy sees with his eyes; The boy hears with his ears, etc. (By this time the timid pupils have been relieved of embarrassment and inspired with confidence.)

The Picture Boy.—Show the class the picture of a boy, and require pupils to point to and name the parts of the picture boy.

Now ask what the boy before the class can do that the boy on the chart or in the picture cannot. Answers similar to the following will be given: This boy can see; that boy cannot: That boy can't run; this boy can: That boy can't work.

Ask why that boy cannot see, run, work etc., and obtain: Because that is a picture boy.

Ask what kind of boy to call this, if that is a picture boy, and obtain: A true boy; A live boy, etc. Give the term *real*, and have pupils point to the real boy and then to the picture boy, saying, as they do so, This is a real boy; or, This is a picture boy.

The word Boy.—How many would like to see another kind of boy? Watch, while I write something that makes me think of a real boy. (Teacher prints the word and tells the pupil it is the word *boy*.) Pupils are practiced in pointing to the real boy, the word boy and the picture boy, and then to the word *boy* as found in various places upon the blackboard and charts until they know it at sight.

Spelling.—Pronounce the word *boy*, and spell it, and call upon the pupils individually and in concert to imitate. Do this until each pupil can say boy—b-o-y—boy.

Review and Drill.—Cause pupils to find the real boy, the picture boy and the word *boy*. Wherever the word boy is pointed to, let the pupil finding it pronounce and spell it. After him the class should pronounce and spell the word in concert.

This lesson can be given thoroughly in twenty minutes.

NOTE.—At least twelve nouns should be given to the class according to the above plan before an action word, or verb, is given. The pupils should be so drilled that they shall know these words at sight and be able to write them on their slates. Ten or twelve lessons will be required for this.

THE THIRTEENTH READING LESSON.

Specific Object.—To teach pupils to recognize and spell the word *runs*; to combine this word with words previously learned and form sentences with them; and to learn the word *the* and use it with the other words in making sentences.

MATTER.

The words *runs* and *the*: The boy runs; the girl runs; the man runs, etc.

METHOD.

Preparation.—Before the time of recitation the teacher should print on the board the words *runs* and *the*, and the sentences given in *Matter*.

Arrange the class in proper order before the blackboards and charts.

Review.—Pupils should be required to find and spell the object words previously learned. Train the pupils to work rapidly.

The Action.—Select a child from the class and tell him to go from a certain point in the room to another as fast as he can. Teacher then asks what the boy does. Pupils reply: The boy runs.

If it were a girl instead of a boy, what would you say? The girl runs.

If it were a man, what would you say? The man runs. (Continue this questioning until all the name words learned have been used with the word *runs* to form sentences.)

The Word Runs.—Ask how many wish to see and learn the word *runs*. Print it in several places on the board and call on pupils to find it on the board and charts. (Be sure that the pupils pronounce the word correctly and distinctly.)

Spelling.—Spell the word for the pupils and require them to repeat.

Drill in spelling by having individual pupils point to the letters as they are pronounced.

The Word The, Its Spelling and Use.—Write the sentence, *The boy runs,* on the board, read it to the pupils and have them repeat. Let them find the words they know; tell them the other word is *the* if they cannot tell, and have them find the word in other places on the board and on the charts.

Teach them the spelling of the word as before.

Review and Drill.—Have the pupils read all the sentences given in *Matter*, find and spell the two new words many times. Call on dull pupils oftener than on others.

(This lesson should be given in twenty minutes.)

(From twelve to twenty verbs should be given according to above plan. The word *a* should be given also. With these and the words previously learned, many sentences should be made. Children should be able to recognize any of the words at sight, as well as to write them on the slate.)

THE TWENTY-FIFTH READING LESSON.

Specific Object.—To teach pupils to recognize and spell the word *good*; to combine the word *good* with words previously learned, and form sentences with them; to recognize and spell the word *is* and use it with other words in forming sentences.

MATTER.

The word *good*; The good boy studies; The good girl reads; The good horse walks; The good cat catches mice, etc. The word *is*; Candy is good; The boy is good; The girl is good, etc.

METHOD.

Preparation.—Words and sentences should be printed on the board, as in previous lessons.

The Idea Developed and Expressed.—All those who like candy raise hands.

How does it taste?

It tastes sweet. It tastes good.

Yes. If it tastes good, what may we say of it?

Candy is good.

Name other things that are good.

The apple is good. The peach is good.

What do we say of a boy or a girl who tries to do right?

The boy is good. He is a good boy.

The girl is good. She is a good girl.

(Pupils give many other sentences containing the word good.)

The Word Learned.—What new word do you want to learn to-day? (Pupils will answer.)

Teacher should next print the word in several places on the board and have the pupils point to and spell it.

Teacher should next print a sentence on the board as The good horse runs, and cause pupils to read it word by word both forward and backwards.

Pupils should next be practiced in finding sentences upon the boards and charts as they are pronounced by the teacher. This will train them to see sentences as wholes. This eye training cannot be begun too soon.

Next teach the word *is* as the word *the* was taught in lesson thirteen, and practice children in finding it on the board and charts. Drill in reading many sentences as wholes.

Erase all work from the boards, put the charts out of sight and drill pupils in spelling from memory the list of words they are supposed to have learned.

Seat Work.—Pupils should be required to reproduce on their slates sentences containing the words that have been taught them. Great care should be taken to have this done in an *orderly manner*. Some extra time will be required to show them how to do it. Be careful to show them how to hold the pencil and make them so hold it.

From ten to twenty adjectives should be given according to above plan. With these and the words previously learned many sentences should be made.

THE THIRTY-SIXTH READING LESSON.

Primary Object.—To teach pupils to recognize and spell the words *and*, *on* and *in*.

MATTER.

And, *on* and *in*.

Jane has a book and a box.	John has a knife and a book.
The book is on the table.	The bell is on the table.
The pencil is in the box.	The slate is in the desk.

METHOD.

Preparation.—Words and sentences should be printed on the board, as in previous lessons. Give a brief, vigorous review of words previously learned.

The use of the word *and*.—(Teacher has pupils take two objects, a book and a box, from the table.) Tell the class what you have.

I have a book and a box.

What has Jane?

Jane has a book and a box.

(Pupils all repeat.)

The word learned.—Find what you have said on the board. (Pupil does so.)

What new word do you find?

(Pupils will say the word *and*.)

Pupils spell the new word and find it in various places on the board and charts.

The use of the word *on*.—Jane may put the book down. (Puts the book on the table.)

Where is the book?

The book is on the table.

(Pupils all repeat.)

Where is the bell?

The bell is on the table?

(Pupils all repeat.)

The word learned.—Now, I want you to find what you have said about the book and bell, on the board or charts.

Pupils do so and discover the new word.

They should be made to spell it and find it in other places on the board and charts until they are familiar with its shape and spelling.

The use of the word in.

Where is the pencil?

The pencil is in the box.

Where is my slate?

My slate is in the desk.

(Pupils repeat these statements until they are familiar with them.)

They should be sent to the board to find what they have said. They will discover the new word. They should be made to find it elsewhere, and drilled in spelling it until they know it.

Drill pupils severely in spellingg the three new words. Assign for seat work the task of writing these words many times on the slates.

FIRST READER.

The following outline indicates what should be accomplished by the use of this book.

PHYSICAL CULTURE.

Pupils should be:

Trained to a good position of head, trunk, feet and hands (including book); (See course of physical drill.)

Drilled to a distinct articulation and correct pronounciation; (See systematic course of phonic drill.)

Taught to vary the rate of reading; to read with medium pitch; to emphasize proper words; to give rising and falling inflections when required.

MENTAL CULTURE.

Pupils should recognize readily at sight:

Letters,—small, capital, Italics, written and printed; also value of letters (sounds):

Words and their division into syllables:

Compound Words and parts:

Contracted Forms:

Possessive Forms of words:

The Punctuation Marks.—comma, period, question mark (interrogation point), surprise mark (exclamation point), hyphen, dash; also the number and division of paragraph:

Numbers, cardinal and ordinal, as far as they occur.

Pupils should be:

Required to spell by letters and by sounds; to give the number of the page and the number and subject of each lesson; to give simple but intelligent definitions; proper synonyms; to give the ideas expressed in each lesson in their own language:

Trained to read in pure tones only and with expression; to cast the eyes from books to listeners; to look at the questioner and answer promptly; to get assigned lessons; to give opinions of pictures illustrating the lessons and to suggest other pictures.

MORAL CULTURE.

The teacher should:

Impress the moral contained in each lesson on the minds of the children:

Train pupils to be careful of their own and others' property; to be polite, kind and generous:

Question as severely when visitors are present as when alone and not confine questions to bright pupils.

Test Work.—While reading the second book, at least one recitation each week should be devoted to reading matter

entirely new to the pupils. A corresponding book of another Series will serve for this purpose. The pupils may be called upon individually to read from it. The way in which pupils read new matter corresponding to what they are learning is a good test of the value of the teaching done.

ARTICULATION AND PRONUNCIATION.

The following exercises in articulation and pronunciation must be thoroughly given. Take them in course, place them on the board and devote *two minutes* daily to individual and simultaneous drill.

The teacher's pronunciation should be faultless. It is not safe for the teacher to assume that he knows how to pronounce the words in the following lists. An Unabridged Dictionary should be a constant desk companion.

LIST NO. 1.

Half,	path,	guard,	farther,
aunt,	laugh,	calves,	salve,
hearth,	palm,	haunt,	calf,
ah,	father,	calm,	halves,
gape,	haunch.		

LIST NO. 2.

Pass,	answer,	mast,	fast,
glass,	pasture,	graft,	ask,
dance,	class,	cast,	nasty,
clasp,	chance,	draft,	grass,
master,	staff,	last,	past,
gasp,	glance,	mask,	task,
plaster,	pastor,	basket,	casket.

LIST NO. 3.

James,	Mary,	Sarah,	aye.
--------	-------	--------	------

LIST NO. 4.

Care,	bare,	air,	there,
fair,	parent,	their,	pair,
stair,	prayer,	dare,	hair,
prepare,	chair,	share,	pear,
bear,	where,	stare,	scare,
rare,	scarce,	stairway,	fairy.

LIST NO. 5.

Lord,	short,	saucer,	auktion,
nor,	because,	August,	for
saucy,	naughty,	orchard,	organ.

LIST NO. 6.

Heard,	earth,	curve,	stir,
fern,	fur,	surface,	sir,
bird,	thirst,	thirsty,	earn,
birth,	shirk,	hurry,	further.
purr,	certain,	curl,	service,

LIST NO. 7.

God,	cost,	bonnet,	coffee,
wrong,	borrow,	bottle,	song,
long,	longer,	longest,	lock,
locksmith,	rod,	soft,	songster,
clock,	office,	soften,	often,
fog	moss,	hod,	odd,
not,	common,	cobweb,	offer,,
frost,	cotton,	dog,	ox,
sod.	cloth,	blossom,	strong,
cough,	coffin,	frog,	gone,
lost,	loss,	copper,	frolic,
knotty,			

LIST NO. 8.

Whole,	wholly,	hold,	sofa,
home,	won't,	coat,	folks,
wholesome,	cloak,	colt,	poultry,
stone,	pork,	only,	

LIST NO. 9.

Foot,	pull,	full,	push,
cushion,	stood,	crooked,	forsook,
hook,	look,	cook,	book,
wood,	understood,	hood,	wool,
good,	shook,	bush,	

LIST NO. 10.

Root,	boot,	food,	hoot,
loose,	noon,	poor,	soon,
move,	croup,	rule,	whooping,

who,	hoof,	cool,	fool,
bouquet,	roof,	ooze,	whom,
loom,	mood,	brute,	hoofs,
roost,	prove,	tool,	coop,
broom,	whose,	moon,	pool,
hoop,	loop,	do,	rude,
room,	too,	tooth,	two.

LIST NO. 11.

Blue,	flute,	blew,	pupil,
newspapers,	new,	news,	July,
tune,	beautiful,	fluted,	pure,
acute,	tube.	putrid,	Susan,
tulip,	mule,	tuberose,	perfume,
music,	knew,	suit,	cube,
duty,	beauty,	few,	dew,
dewlap,	puny,	due,	June,
glue,	nubia,	obtuse.	

LIST NO. 12.

Cow.	house,	down,	town,
now,	out,	pronoun,	round,
found,	sound,	how,	owl,
flowers,	around,	ground,	mound.

LIST NO. 13.

Rib,	crib,	fib,	sob,
bulb,	rob,	disturb,	throb,
robe,	hub,	describe.	

LIST NO. 14.

And,	hand,	hands,	friend,
friendly,	fields,	wild,	wilds,
widely,	cold,	colds,	coldly,
kindly,	blindness,	blind,	blinds,
stands,	finds,	grand,	grandly,
child,	grinds,	lends,	folds,
build,	builds,	played,	necks,
pecks,	tasks,	desks,	masks.

LIST NO. 15.

Horse,	high,	hammer,	heaven,
hail,	have,	hate,	handsome.

LIST NO. 16.

Jam,	jest,	just,	gill,
journey,	judge,	joke,	gentle.

LIST NO. 17.

Roll,	ring,	four,	for,
barn,	dream,	quart,	rice,
ribbon,	rabbit.		

LIST NO. 18.

Rest,	rests,	nest,	nests,
best,	vest,	vests,	dusts,
lists,	casts,	crusts,	objects,
guest,	guests,	recites,	visits,
wrists,	against,	directs,	posts,
fists,	insects,	neglects,	connects,
correct,	corrects,	request,	requests,
bisect,	biscuits,	trisect,	trisects.

LIST NO. 19.

Very,	vase,	vail,	vegetable,
vat,	five,	fives,	fix,
flames,	flag.		

LIST NO. 20.

Finger,	linger,	link,	uncle,
hungry,	younger,	young,	strength,
length,	think,	sink,	singer,
singing,	wink,	angle,	anger,
angry,	thing,	think,	monkey.

LIST NO. 21.

Sabbath,	youths,	fourth,	fourths,
death,	deaths,	fifths,	fifth,
truths,	breath,	breaths,	thread,
thief,	thin,	truth,	month.

LIST NO. 22.

With,	beneath,	moths,	cloths,
mouths,	leather,	another,	without,

clothe,	clothes,	baths,	paths,
breathe,	these,	this,	laths,
wreathe.			

LIST NO. 23.

Church,	such,	chicken,	catch,
chimney,	each,	scratch.	

LIST NO. 24.

Shrill,	shrub,	sheet,	shrink,
shrewd,	sharp,	shake,	shrunk,
shoulder,	Chicago,	shrine,	shroud.

LIST NO. 25

White,	whirl,	whisper,	what,
whim,	whittle,	whistle,	whistling,
where,	whale,	wheel,	when,
whether,	which,	wheat,	whet,
whip.			

LIST NO. 26.

Since,	get,	been,	cellar,
hundred,	every,	thistle,	wrestle,
elm,	said,	picture,	really,
between,	before,	says,	general,
window,	engine,	deaf,	yellow,
pretty.			

SECOND READER.

PHYSICAL CULTURE.

In addition to what is required in the First Reader, the pupils should be

Drilled in all the different degrees of force, speed, pitch and volume;

Taught to read with moderate force.

MENTAL CULTURE.

Pupils should be taught

To recognize abbreviated forms of words; simple, derived and base words;

To spell all words found in the lesson and all words used in talking of lesson;

To define in such a way as to show that what is read is understood;

To recognize quotation marks, marks of accent, the colon, semicolon and parenthesis.

ARTICULATION AND PRONUNCIATION.

Use lists given for First Reader.

THIRD READER.

PHYSICAL CULTURE.

In addition to what is required in the First and Second Readers, the pupils should be

Trained to read in the expulsive form of voice.

MENTAL CULTURE.

Pupils should learn

To define pronunciation, emphasis, pitch, rate, accent, inflection and good reading; base word, derived word, simple word, compound word, contracted form, possessive form, abbreviated form; vowel, consonant, silent letter and equivalent; monosyllable, dissyllable, trisyllable and polysyllable;

To spell all words found in the Reader and all words used in talking about the lessons;

To Define all words accurately:

NOTE.—The teacher should not allow the pupils to define loosely. The definition accepted should apply to the word exactly, not to another word just or nearly like it but filling some other office, as: a noun for a verb, or a verb for a noun; an adverb for an adjective, or an adjective for an adverb; a verb with *to* before it for the structural part ending in *ing*, or *vice versa*. These errors, so common and so seldom corrected, induce bad habits in thought, study and expression.

To use the dictionary: (This will require a knowledge of the *alphabetical arrangement* of words; *accent marks*, primary and secondary; *representation* of long sounds, broad sounds, short sounds, of long and short Italian *a*, of tilde *e*, and of the different sounds of *s*, *th*, *ch* and *c*.)

To substitute appropriate synonyms in rapid reproductions of reading lessons:

To recognize all marks of division and reference:

To give simple definitions of poetry and prose:

To see and appreciate that all the laws given in the Second Series of Language Lessons may be learned upon the pages of their reading books:

To give opinions concerning the illustrations and give brief oral descriptions of the same.

As often as once a week the teacher should test the pupils' progress by having them read other books or papers of corresponding grade.

ARTICULATION AND PRONUNCIATION.

(Daily two-minutes drill.)

LIST NO. 1.

Arm,	charm,	jaunt,	jaundice,
balm,	embalm,	jaunty,	taunt,
balmy,	guardian.	psalm,	carcass,
charcoal,	papa,	mamina,	launch.
lathing,	varnish,	gape,	
laundry,			

LIST NO. 2.

Alas,	command,	mastiff,	prance,
amass,	demand,	masticate,	trance,

brass,	lance,	mastication,	waft.
after,	contrast,	advance,	

LIST NO. 3.

Maryland,	Babel,	matron,	patron.
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LIST NO. 4.

Apparent,	compare,	declare,	rarity,
farewell,	despair.		

LIST NO. 5.

Sausage,	autumn,	caucus,	auburn,
gaudy,	faultless,	storm,	normal,
formal,	dormant.		

LIST NO. 6.

Firmament,	prefer,	verdure,	skirmish,
circulate,	refer,	certain,	fervid,
earnest.			

LIST NO. 7.

Across,	Boston,	docile,	gossip,
aloft,	doctor,	docket,	officer,
closet,	dollar,	gospel,	offensive,
moral,	orange,	orator,	polish,
tongs,	scoff,	hostler.	

LIST NO. 8.

Homely,	toward,	only,	social,
oral,	portrait,	portion.	

LIST NO. 9.

Moose,	rumor,	recruit,	canoe,
raccoon,	balloon,	saloon,	cocoon,
caboose,	bosom,	roomy.	

LIST NO. 10.

Assume,	presume,	calculate,	constitution,
consume,	curiosity,	cutis,	fortitude,
destitute,	institute,	fuel,	future,
introduce,	jury,	Lucy,	numeration,
multitude,	numerator,	opportunity,	produce,
substitute,	stupid,	student,	tutor,
tuition,	durable,	plural,	costume,
tribune,	ague,	pursue,	amuse,
fluid,	bugle,	Tuesday,	obituary.

agriculture,	resolution,	educate,	graduate,
furniture,	literature,	nutrition,	actuate,
mature,	verdure,	capture,	scripture,
education,	leisure,	neuralgia,	creature.

LIST NO. 11.

Depends.	commands,	amends,	defends,
grinds,	sands,	bands,	binds,
minds,	demands,	descends,	ascends,
pretends.			

LIST NO. 12.

Lief,	wife's,	calf's,	loaf's,
leafed,	knife's,	half-filled,	shelf's,
beef's,	life's.		

LIST NO. 13.

Suggest,	suggested,	suggestion,	gibbet,
gesture,	gibberish,	gist.	

LIST NO. 14.

Chyle,	architect,	arctic,	chasm,
archangel.			

LIST NO. 15.

Anxiety,	angular,	congress,	tranquil,
singular.			

LIST NO. 16.

Projects,	crests,	bequests,	contests,
protests,	assists,	resists,	exists.
glisten,	thistle,	whistle,	fasten,
moisten,	moistened,	nestle,	wrestle,
apostle,	rustle,	bustle,	hustle.

LIST NO. 17.

Exhibit,	exhaust,	exact,	examine,
exist,	executive,	exaggerate,	example,
exhaustible.			

LIST NO. 18.

Excursions,	excuse,	expression,	exploit,
excel,	exhibition.		

LIST NO. 19.

Broadcloths,	dishcloths,	footpaths,	foot-baths,
neckcloths,	underneath.		

LIST NO. 20.

Match,	satchel,	stretcher,	pitcher,
crotchet,	hatchet,	wretch,	twitch,
switch,	witch,	screech.	

LIST NO. 21.

Sugar,	action,	auction,	quotient,
passion,	chamois,	association,	Asia,
pronunciation,			

LIST NO. 22.

Whack,	whist,	whine,	whimper,
whirling,	whining,	whetstone,	whimsical,
whipping,	whither,	wheeze,	whim,
whiz.			

LIST NO. 23

disarm,	disaster,	discern.	disease,
disheir,	dishonest,	dishonor,	dismal,
disown,	dissolve.		

LIST NO. 24.

Diamond,	miserable,	arithmetic,	general.
idea,	gradually,	history,	February,
usually,	vegetable,	favorite,	separate.
salary,	celery,	memory,	library,
slippery,	perfumery,	several,	direction,
almond,	mischievous,	canine,	digest,
division,	judgment,	apostrophe,	college.

FOURTH READER.

PHYSICAL CULTURE.

In addition to what is required in the First, Second and Third Readers, the pupils should be:

Trained to read in the effusive and explosive forms of voice; with the pure and orotund qualities of voice;

Drilled systematically in the sounds of the vowels and consonants.

Pupils should learn:

To define the different qualities of voice used; the different forms of voice;

To analyze the selections to be read, determining in each case the character of the selection, the form and quality of voice to be used, and the kinds of pitch and rate necessary.

To recognize and define a Simile, a Metaphor, a Figure of Hyperbole, a Figure of Metonymy, a Comparison.

To give brief descriptions of pictures that might be made to illustrate different portions of the text not illustrated.

NOTE.—When practicable, these should be drawn on the board after they have been described.

Pupils should:

Learn the meanings of the prefixes, *a, re, un, mis, al, inter, pre, trans, ex*; and the suffixes, *ing, ed, ful, y, ly, ship, ness, er, al, ar, less, en, or, hood, tion, able, ible, ance, kin, let, dom, age, ship, al, ality*:

Memorize a short account of the life, and the names of some of the principal works of the following authors:

FIRST YEAR.

1st Term.—Alfred Tennyson.

2d Term.—H. W. Longfellow.

3d Term.—J. G. Whittier, W. C. Bryant.

SECOND YEAR.

1st Term.—William Wordsworth, O. W. Holmes.

2d Term.—Felicia Hemans.

3d Term.—James R. Lowell, T. B. Aldrich.

Pupils should be:

Required to learn four or five selections from each of the above named authors.

Friday afternoon of each week may be devoted to the recitation of selections as above required, and to reading new matter of proper grade. Other Fourth Readers, magazines, books of poems, and histories may be introduced.

ARTICULATION AND PRONUNCIATION.

LIST NO. 1.

Massive,	draught,	blanch,	cash,
advantage,	pasture,	France,	countermand,
agape,	almond,	naive,	palaces,
algebra,	dilemma,	banana,	

LIST NO. 2.

Broth,	belong,	oracle,	trough,
prong,	forage,	hostage,	forehead,
sovereign,	foster,	yonder,	forest,
torrent,	sorrel,	doff,	toss,
doll,	mock.		

LIST NO. 3.

Altitude,	aptitude,	conduce,	gratitude,
lunatic,	numeral,	solitude,	constitution,
absolute,	allure,	articulate,	during,
luminous,	numerous,	stewed,	attitude,
illumine,	allude,	durable,	induce,
luxurious,	Luke,	numerate,	subdue,
revenue,	tunic,	alluvial,	confuse,
museum,	resolute,	tumult.	

LIST NO. 4.

True,	brew,	intrusive,	tour,
ruin,	noose,	schooner,	tourist,
route,	ruby,	shrew,	tournament,
nephew,	truth,	booth,	prude,
hurrah,	prune,	bestrew,	rudiment.

LIST NO. 5.

Direction,	dividend,	digest,	diverge,
digestive,	diversion,	digestion,	diminish,

digress,	divinity,	diploma,	digression,
dilute,	divide,	dilate,	divorce,
direct,	divisible,	direction,	divisor,
director,	divulge,	divine,	divest,
dilapidate,	diversity,	diplomatist,	divan,
piano,	piazza,	fidelity,	pianist.

LIST NO. 6.

Futile,	granite,	medicine,	vulpine,
ermine,	fertile,	enfranchise,	rapine,
favorite,	genuine,	feminine,	respite,
hostile,	infinite,	heroine,	bromine,
intestine,	definite,	reptile,	clandestine,
masculine,	nicotine,	elephantine.	

LIST NO. 7.

Educate,	gradual,	modulate,	assiduous,
credulous,	graduate,	pendulum,	verdure,
individual,	undulate,	adulation,	procedure,
fraudulent,	obdurate,	grandeur,	graduation.

LIST NO. 8.

Capture,	virtue,	future,	picture,
creature,	feature,	lecture,	question,
culture,	fortune,	rapture,	natural,
venture,	nature,	sculpture,	stature,
vulture,	rapturous,	pasture.	

LIST NO. 9.

Blends,	pretends,	astounds,	adz,
holds,	extends,	friends,	bonds,
blinds,	lends,	rends,	winds,
bards,	folds,	kinds,	stands,
lands,	sends,	scolds,	builds.

LIST NO. 10.

Whiskey,	whelm,	wharf,	Whitney,
whilst,	whiten,	whey,	Whittier,
whig,	whimsy,	whit,	what,
when,	which,	where,	whole.

LIST NO. 11.

Concrete,	dangle,	Bangor,	crank,
yankee,	language,	conquest,	conquer,

angle,	congregate,	rankle,	jingle,
banquet,	vanquished,	anger,	concourse,
single,	anchor,	linguist,	languid,
mongrel,	concave,	finger,	clangor,
languish,	lingual.		

LIST NO. 12.

Design,	Kansas,	Illinois,	transpose,
discolor,	Missouri,	rise,	transport.

LIST NO. 13.

Asia,	pronunciation,	appreciate,	chaise,
association,	chamois,	charade,	excursion,
Persia,	Chicago,	Persian.	

LIST NO. 14.

Underneath,	prithce,	scythe,	swathe,
bequeath,	withhold,	northerly,	scathed,
thither,	baths,	seethe,	northern,
sheath,	blithe,	booth,	writhe,
lithe,	soothe,	loathe,	hither,

LIST NO. 15.

Often,	pestle,	jostle,	hasten,
chasten,	epistle,	prattle,	listen,
whistle,	gristle,	rustle.	

LIST NO. 16.

Exuberant,	exaugurate,	exaggerate,	exhort,
exalt,	exile,	exhibit,	exempt,
exorbitant,	exhume,	luxurious,	exult,
exotic,	exert,	exactly,	exonerate,
exhale,	exertion,	executive,	exhilarate.

LIST NO. 17.

Exceed,	exogenous,	extend,	exclaim,
excess,	exposition,	exit,	expand,
except,	exclude,	excite,	exile.
express,	excavate,	expend,	expel,
execute,	explicable,	exquisite,	expedition.
experiment,	expansion,	exponent,	extrude,
exhortation,	extirpate,	export,	expose,
exterior,	expulsive,	extinct,	extract,
extolled,	exude,	explode,	excelsior,

LIST NO. 18.

Abdomen,	address,	adult.	adverse,
canelopard,	dolorous,	encore,	finance,
albumen,	allies,	amateur,	antepenult,
arabic,	cayenne,	chastisement,	comparable,
convex,	fragmentary,	illustrate,	aroma,
photographer,	respiratory,	benzine,	vehement,
obligatory,	impious,	interesting,	lamentable,
conversant,	aerolite,	aeronaut,	abjectly,
blasphemous,	equipage,	combative,	applicable,
alabaster,	disputant.		

LIST NO. 19.

As nouns or adjectives and as verbs.

Absent,	cement,	compound,	digest,
discount,	exile,	insult,	perfume,
permit,	produce,	detail,	undress.

FIFTH READER.

PHYSICAL CULTURE.

In addition to what is given with the preceding readers, the pupils should be:

Drilled systematically in the three forms of voice; in the different qualities of voice, and in the different degrees of rate and pitch:

Trained rigidly and systematically to distinct articulation and correct pronunciation:

Practiced in choosing and retaining easy and graceful attitudes upon the rostrum.

MENTAL CULTURE.

Pupils should be:

Required to learn short selections illustrating each of the different forms and qualities of voice:

Expected to define and illustrate Allegory, Personification, Apostrophe, Climax, Irony, Interrogation, Synecdoche:

Required to learn a short biography of each of the following named authors and the names of some of their principal works: (The selections illustrative of the different forms and qualities of voice should be from these authors as far as possible.)

FIRST YEAR,

1st Term,—Bayard Taylor;

2d Term,—Charles Dickens, J. G. Holland;

3d Term,—J. G. Saxe, Shakespeare:

SECOND YEAR,

1st Term,—Lord Byron, Walter Scott;

2d Term,—H. W. Beecher, Thomas Moore;

3d Term,—Thomas Hood, John Pierpont:

Required to learn the meanings and uses of the following English and Latin prefixes and suffixes:

ENGLISH,

PREFIXES.—*a, be, co, en, fore, mis, out, with, un;*

SUFFIXES.—*able, age, al, ar, an, ary, dom, en, er, ery, ful, fy, ion, ish, ior, less, let, ly, ment, ness, ous, ship, y:*

LATIN,

PREFIXES.—*Ab, ad, ambi, ante, circum, con, contra, de, dis, ex, extra, in, intro, mis, ob, per, post, pre, pro, preter, re, retro, se, sine, sub, subter, super, trans;*

SUFFIXES.—*Ac, aceous, acy, ate, al, an, ant, ar, ary, cle, ent, escent, ic, ice, id, ile, ine, ise, ism, ist, ite, ity, ive, mony, or, ory, ose, tude, ule, ure:*

Required to learn the following primitives and to make many derivatives from each:

Fero, fluo, jacio, frango, gero, pello, struo, facio, do, venio, ago, duco, mitto, dico, video, paro, pono, scribo, traho, vinco, quaero, eurro, verto, audio, cedo.

At least 50 derivatives should be made from each or most of the above words, Explain the process of formation in full.

ARTICULATION AND PRONUNCIATION.

(Two-minute exercises.)

LIST NO. 1.

Naively,	sardine,	naivete,	palmy.
piano,	bravo,	plateau,	partridge,
daunt,	psalmist,	sergeant,	saunter.

LIST NO. 2.

Ostentatious,	dogma,	chorister,	ostrich,
opportunity,	dolphin,	florid,	corolla,
offal,	solace,	orator,	hospital,
obsolete,	oft,	oriflamme,	origin,
ostracism,	ossify,	osprey.	

LIST NO. 3.

Purlieu,	fuchsia,	superstition,	Julia,
lucifer,	latitude,	jurisdiction,	elude,
Judas,	exhume,	expenditure,	fury,
endure,	actuary,	literature,	Lucy,
rectitude,	habituary,	Luther,	lubricate,
intuitive,	tribune,	verdure,	obituary,
pneumatics,	lurid,	abjure,	agriculture,
graduate,	pneumonia,	fluency,	lunar,
ludicrous,	lucid,	duplicate,	institute,
neuralgia,	glue,	ichneumon,	graduation.

LIST NO. 4.

Abstruse,	accoutre,	Druid,	obtrusive,
quadruped,	brougham,	bruit,	brutal,
brute,	obtrusion,	surtout,	scrupulous,
Buddhism,	caoutchouc,	courier,	scrutinize,
excruciate,	manceuvre,	ruthless.	

LIST NO. 5.

Dijudicate,	diluvium,	divestment,	dilution,
dilatable,	Titanic,	directress,	dimension,
directory,	divergent,	divest,	dilemma,

diluvial,	diminish,	pirogue.	directress,
divinity,	division,	visite,	ridiculous.

LIST NO. 6.

Adventure,	manufacture,	saturate,	christian,
caricature,	punctual,	congratulate,	ritual,
sumptuous,	expenditure,	departure,	effectual,
curvature,	literature,	mature,	fortunate,
furniture,	nurture,	miniature,	habitual,
mutual,	legislature,	scripture,	signature,
statue,	impetuous,	obituary,	petulant,
fracture,	indenture.		

LIST NO. 7.

Magna Charta,	architecture,	archaism,
archipelago,	chiropodist,	archives,
Cheiroptera,	chirography,	Chaldee,
chameleon,	chalcedony,	archetype,
chaldron,	Antaretic,	orchestra.
chimera,		

LIST NO. 8.

Transverse,	disconcert,	transitive,
transmute,	discriminate,	transmigrate,
disconnect,	transplant.	

LIST NO. 9.

Chagrin,	chaperon,	excursion,
champagne,	chicanery,	equation,
chevalier,	chateau.	

LIST NO. 10.

Suggest,	giblet,	gib-boom,
gist,	gesture,	gybe,
gyrate,	gelatine,	pedagogical,
suggested,	suggestion,	gibe.

LIST NO. 11.

Exemplar,	exanimate,	exultant,
exasperate,	exulcerate,	exitial,
luxuriant,	exuberant,	exordial,
exhaustion,	exemplify,	exuberate.

LIST NO. 12.

explication.	excrescence,	extenuate,
exception,	expurgate,	exodus,
exorcise,	exoteric,	exorable,
expedite,	extradition,	explicit,
extraordinary,	exchequer,	extinguish,
exigency,	expedient,	expatriate,
extort,	expert,	excruciate,
exchange,	exciseman,	extension,
excel,	execrable.	

LIST NO. 13.

Absolutory,	acclimate,	adamantean,
admirable,	advertisement,	aggrandizement,
appropriative,	capitoline,	coadjutant,
colporteur,	communist,	desultory,
Hellenic,	hymeneal,	allegorist,
allopathist,	pyramidal,	animadvert,
antipodes,	Byzantine,	coadjutor,
epicurean,	Herculean,	telegraphist,
irreparable,	phosphorous,	preferment,
reconnoissance,	undersigned,	wiseacre,
infamously,	irrevocable,	mandarin,
referable,	interesting,	respited,
irrefragable,	misconstrue,	peremptory,
precedence,	refutable.	

LIST NO. 14.

Bombard,	pumpkin,	blackguard,
clapboard,	alpaca,	bombast,
Indian,	debris,	parquet,
indictment.		

ANGUAGE.

FIRST SERIES.

FIRST AND SECOND GRADES.

Object.—To increase the children's vocabularies and to give them a fluent and accurate use of the same.

FIRST STEP.

(TWO WEEKS.)

I.—Lead pupils to form sentences involving the use of nouns as subjects in both singular and plural forms. Only nouns whose plural forms are regularly made should be used, as: The horse runs. Horses run. The boy studies. Boys study. The girl plays. Girls play. (See Plan I. Appendix.)

The specific object of the above is two fold:

1st. To give pupils an idea of the different forms of nouns to express unity and plurality;

2d. To habituate the pupils to the use of the right form of the verb.

This work should be continued until pupils will no longer use the singular form of verb with a plural subject.

(SIX WEEKS.)

II.—Lead pupils to form sentences involving the use of nouns as subjects, objects and complements, in both singular and plural forms.

Nouns whose plurals are formed by an internal change or change of word should be used.

LIST.

Man,	loaf,	wife,	wolf,
life,	knife,	mouse,	foot,
calf,	ox,	tooth,	half,
thief,	child,	shelf,	sheaf,
louse,	leaf,	goose,	woman.

The above work should be given until pupils will use each word correctly as subject, object and complement, and until they have the idea distinctly impressed that one form means one and the other form more than one.

Pupils should also be drilled until they will give readily the other form when the teacher gives them one of the forms.

The teacher pronounces the word mouse. Pupils promptly reply: Mice, more than one mouse.

(TWO WEEKS.)

III.—Lead pupils to form sentences involving the use of nouns as subjects, objects and complements whose forms are not changed to express number.

Pupils should commit the following list:

Ashes,	snuffers,	tongs,	shears,
suds,	cattle,	scissors,	eaves,
clothes,	victuals.		

(TWO WEEKS.)

IV.—Lead pupils to form sentences involving the ordinary use of qualifying adjectives.

Slow,	smooth,	rough,	sharp,
near,	quick,	rapid.	bad,
careful.			

(FOUR WEEKS.)

V.—Lead pupils to form sentences involving the use of *a* and *an*. (See Plan II, Appendix.)

LIST.

Apple,	aunt,	organ,	overseer,
ear,	overcoat,	urn,	eye,

acorn,	ivy,	adder,	inkstand,
arm,	elephant,	onion,	apron,
overshoe,	orchard,	oyster,	object,
owl,	orange,	edge,	ostrich,
ottoman,	awl,	album,	hour,
ox,	uncle,	organist,	apex,
egg,	eagle.		

Sentences should also be formed involving the use of *a* and *an* before nouns modified by adjectives beginning with vowels as well as consonants.

LIST.

Elegant,	india-rubber,	one,	oval,
outside,	iron,	open,	innocent,
ill-behaved,	eager,	ice-cream,	old,
even,	odd.		

(THREE WEEKS.)

VI.—Lead pupils to form sentences involving the use of the different forms of adjectives whose forms are changed regularly.

LIST.

Tall,	black,	deep,	hard,
white,	short	sharp,	small,
sweet,	low,	large,	narrow,
high,	quick,	soft,	rough,
slow,	long,	wide,	smooth.

(ONE WEEK.)

VII.—Lead pupils to form sentences involving the ordinary use of adverbs of time, place and manner.

Now,	when,	then,	often,
above,	below,	up,	down,
slowly,	smoothly,	roughly,	nearly,
rapidly,	quickly,	under,	on.

(See Place Lessons.)

(ONE WEEK.)

VIII.—Lead pupils to form sentences involving the use of the different forms of adverbs, whose forms are changed regularly.

Soon,	early,	badly,	carefully,
late,	slowly.		

(THREE WEEKS.)

IX.—Lead pupils to form sentences involving the use of adjectives in the different forms, and then have them use the same words changed to adverbs in the different forms.

(Use adjectives and adverbs enumerated above.)

Pupils should be drilled in this work until they are able to give the different forms promptly.

(FOUR WEEKS, including a review.)

X.—Lead pupils to construct sentences involving the use of pronouns both singular and plural in the subjective form.

SECOND STEP.

(TWO WEEKS.)

I.—Drill farther on the formation of plurals.

(ONE WEEK.)

II.—Lead pupils to form sentences involving the use of verbs agreeing with *I*, *he*, *she*, and *it* as subjects.

(THREE WEEKS.)

III.—Lead pupils to form sentences involving the use of adjectives whose forms are irregularly changed.

Good,	bad,	ill,	little,
much,	many,	far.	

(See Plan III, Appendix.)

(TWO WEEKS.)

IV.—Lead pupils to form sentences involving the use of this, that, these and those. Train them to avoid such expressions as “these kind,” “those sort,” “them books.” (See Plan IV, Appendix.)

(TWO WEEKS.)

V.—Lead pupils to form sentences involving the use of adverbs whose forms are irregularly changed.

Ill or badly, well, much, far.

(THREE WEEKS.)

VI.—Lead pupils to form sentences involving the use of pronouns in the objective form.

(THREE WEEKS.)

VII.—Lead pupils to form sentences involving the use of pronouns as complements.

(TWO WEEKS.)

VIII.—Lead pupils to form sentences involving the use of pronouns in the possessive form. Lead pupils to form sentences involving the use of pronouns in singular and plural forms referring to antecedents in the same sentence.

(TWO WEEKS.)

IX.—Lead pupils to form sentences involving the use of adverbs of negation.

Drill until pupils avoid the use of double negatives.

(ONE WEEK.)

X.—Lead pupils to form sentences involving the use of the connectives,—either, or; neither, nor.

THIRD STEP.

(ONE WEEK.)

I.—Give farther drill in the formation of plurals.

This work should involve a complete review of nouns whose forms are regularly changed; nouns whose forms are changed irregularly, and nouns used only in one form.

(ONE WEEK.)

II.—Lead pupils to talk in such a way as to involve the use of contractions.

Train pupils to use the proper contractions or to avoid contractions.

(TWO WEEKS.)

III.—Lead pupils to form sentences involving the use of adjectives as complements.

(Avoid the use of an adverb.)

(TWO WEEKS.)

IV.—Lead pupils to form sentences involving the use of adverbs for which they sometimes use adjectives, and *vice versa*.

(THREE WEEKS.)

V.—Lead pupils to form sentences involving the use of relative and interrogative pronouns:

(a) As objects, (b) As adjectives (possessive form), (c) As subjects.

(ONE WEEK.)

VI.—Lead pupils to form sentences involving the use of *as* and *like*.

(TWO WEEKS.)

VII.—Lead pupils to form sentences involving the use of relation words (prepositions.)

At, to; on, upon; between, among;
in, into; like.

(ONE WEEK.)

VIII.—Lead pupils to form sentences involving the use of *and* and *but*.

(EIGHTEEN WEEKS, including a review.)

IX.—Lead pupils to form sentences involving the use of irregular verbs. (See Plan V, Appendix.)

LIST.

See,	go,	do,	lay, lie,
draw,	throw,	grow,	swing,
bite,	blow,	know,	swim,
strike,	give,	run,	be or am,
sting,	drink,	fall,	feel,
sit, set,	teach, learn,	write,	think,
fling,	sing,	break,	come,
bend,	steal,	hang,	forget,
dig,	take,	crow,	fly,
shoe,	wear,	fly,	shoot,
tear,	ring,	catch,	drive,
eat,	fight,	say,	choose,
cleave,	buy,	sweep,	bring.

Of irregular verbs learn forms to express: (a) Absolute past tense; (b) Relative tenses.

Pupils should be made to understand and to say that with *has*, *have* and *had*, the relative structural parts *seen*, *done*, etc., should be used.

The pupils should be so familiar with the irregular verbs of their vocabularies that, when the teacher pronounces one part to them, they can promptly give the other two.

SECOND SERIES.

THIRD GRADE.

Object.—To teach pupils to write the English sentence as it appears on the correctly written or printed page.

The principles given in this series should be *developed*. Most of the laws should be *discovered*; some of the laws must be *dictated*.

Only a small portion of the time allotted is necessary to teach the facts presented. The time should be spent mainly in practice under the laws learned. Abundant material for practice is found in the reading lessons which may be dictated for the pupils to write; as well as in the Human Body-, Plant-, Animal-, Place- and Form- Work which should be written as fast as learned; and in the statements, definitions, rules and analyses in connection with the Number Work.

(FOUR MONTHS.)

I.—Develop idea and teach definition of a sentence. (See Plan VI, Appendix.)

II.—Have pupils learn law for capitalization of the first word of a sentence. (DISCOVERY.)

III.—Develop idea and teach definition of a telling sentence. Have pupils learn law for closing a telling sentence. (DISCOVERY.)

IV.—Develop idea and teach definition of an asking sentence. Have pupils learn law for closing an asking sentence. (DISCOVERY.)

V.—Develop idea and teach definition of a commanding sentence. Have pupils learn law for closing a commanding sentence. (DISCOVERY.)

VI.—Develop idea and teach definition of an exclaiming sentence. Have pupils learn law for closing an exclaiming sentence. (DISCOVERY.)

VII.—Develop idea and teach definition of a noun.

VIII.—Develop idea and teach definition of a proper noun. Have pupils learn law for capitalization. (DISCOVERY.)

IX.—Develop idea and teach definition of a common noun.

X.—Teach that the words I and O should always be capitals. (DISCOVERY.)

XI.—Develop idea and teach definition of the singular form.

Develop idea and teach definition of the plural form.

XII.—Have pupils learn the general law for the formation of plurals. (See Plan VII, Appendix.)

XIII.—Develop idea and teach definition of the possessive form.

Have pupils learn how the possessive singular form is made. (DISCOVERY.)

XIV.—Have pupils learn how the possessive plural form is made. (DISCOVERY.)

XV.—Have pupils learn how the plural form is made when the singular ends in the sounds of s, sh, z, ch, x and j. (Special law No. 1.) (See plan VIII, Appendix.)

XVI.—Have pupils learn how the possessive forms, singular and plural, of nouns given in XV, are made. (DISCOVERY.)

XVII.—Develop idea and teach definition of quoted words. Teach use of quotation marks. Have pupils learn law for the capitalization of the first word of a quotation. (DISCOVERY.)

XVIII.—Develop idea and teach definition of the contracted forms of words. Have pupils learn the use of the apostrophe. (DISCOVERY.)

(THREE MONTHS.)

XIX.—Develop idea and teach definition of the abbreviated forms.

Have pupils learn law for capitalization and punctuation of abbreviated forms. (DISCOVERY.)

XX.—Teach the use of the comma in a succession of particulars when *and* is omitted.

XXI.—Teach how the plural form is made when the singular ends in *y* preceded by a consonant. (Special law No. 2.) (DISCOVERY.)

XXII.—Teach how the plural form is made, when the singular ends in *y* preceded by a vowel. (General law.) (DISCOVERY.)

XXIII.—Teach how the possessive forms, singular and plural, of nouns ending in *y*, are made. (DISCOVERY.)

XXIV.—Teach how the plural is formed when the singular ends in *f* or *fe*. The pupils should learn lists of words.

XXV.—Teach how the possessive forms, singular and plural, of nouns in *f* or *fe* are made. (DISCOVERY.)

XXVI.—Teach how the plural is formed when the singular ends in *o*. The pupils should learn lists of words.

XXVII.—Teach the possessive forms, singular and plural, of nouns ending in *o*. (DISCOVERY.)

XXVIII.—Teach the plurals of nouns whose forms are changed irregularly. The pupils should learn list of words.

XXIX.—Teach the possessive forms, singular and plural, of nouns given in XXVIII. (DISCOVERY.)

(THREE MONTHS.)

XXX.—Teach nouns that have the same form in singular and plural. The pupils should learn list of words.

XXXI.—Teach nouns that are used only in the singular. The pupils should learn list of words.

XXXII.—Teach nouns that are used only in the plural. The pupils should learn list of words.

XXXIII.—Teach the possessive forms of nouns given in XXX, XXXI and XXXII. (DISCOVERY.)

XXXIV. Teach the plurals of letters, signs and marks. (DISCOVERY.)

XXX.—Develop idea and teach definition of compound words. Have pupils learn the use of the hyphen in compound words. (DISCOVERY.)

Have pupils learn law for making the plural of compound words. (DISCOVERY.)

Have pupils learn use of hyphen at the end of a line. (DISCOVERY.)

XXXVI.—Develop idea and teach definition of (a) simple words, (b) derived words, (c) base words.

XXXVII.—Have pupils learn law for the capitalization of the first word of every line of poetry. (DISCOVERY.)

XXXVIII.—Have pupils learn law for the capitalization of the names of Deity. (DISCOVERY.)

XXXIX.—Teach the use of the comma (a) to separate an inverted member from the rest of the sentence, (b) before and after parenthetical portions.

XL.—Teach the use of the semicolon when there is greater separation of parts than is indicated by the comma.

THIRD SERIES.

FOURTH GRADE.

FOUR MONTHS.

The specific object of this series is four fold, viz: to train pupils,

I.—To arrange methodically in writing their (1) knowledge and (2) thoughts of things and events within their observation and experience;

II.—To reproduce from memory, in like or changed forms, the sayings of others;

III.—To note carefully and improve their language and style of expression;

IV.—To obey the laws given in the "Second Series" until obedience thereto becomes habit.

The work of the series includes,

I.—Simple Description of

(1) Objects, (2) Places, (3) Processes;

II.—Simple Narrations of

(1) Events experienced, (2) Events heard of or read;

III.—Epistolary Forms,

(1) Social, (2) Formal, (3) Business;

IV.—Transformation of poetry to prose.

The first production in each kind of composition should be developed. The compositions when finished, will, therefore, be identical.

Before a composition of any kind is attempted, either by development or otherwise, be sure that the pupils have information enough upon the given subject to admit of an arrangement.

Do not attempt the development of a composition without a definitely arranged outline.

Do not allow pupils to write a composition until they have first decided on an outline.

By following these simple rules, so obviously important, and yet so universally ignored, children may be trained to write English as well as they can be trained to do any other school work of corresponding grades. By beginning and practicing frequently at an early age, the pupil's ability to write will be ever ready to respond to his taste and to his (reasonable) desire, and he will not "dislike to write a composition" any more than he will dislike to make a recitation in Geography or Arithmetic.

(FIRST AND SECOND WEEKS.)

The following is given for illustration:

THE DOG.

The dog is a very common domestic animal.

Dogs vary in size from the small poodle to the large Newfoundland. They differ in appearance as much as in size.

Some dogs are useful for guarding property, others for hunting, others as pets, while still others seem to be of no use. Many dogs seem to understand everything that is said to them and can be taught to do many cunning things, such as standing and walking on their hind feet, shaking hands,

opening and shutting doors, and carrying baskets.

Dogs become very much attached to those who are kind to them. I once read of a dog that died of grief at the death of his master.

PLAN.

The pupils should be led to "discover," by reference to their books, where to place the name of the Subject about which they are to write.

The first sentence may be obtained by asking a few questions; as, "How many of you see dogs on your way to school?" "How many have dogs at home?" "What kind of animals do we call those that are found about our homes?" After the sentence has been arranged satisfactorily, all should be made to repeat it, the hard words should be spelled, the laws for beginning and closing it should be stated, after which the pupils should be required to write it carefully on their slates.

By talking of the different varieties of dogs and the peculiarities of some of them, the second and third sentences may be obtained. After leading pupils to give laws for capitalization and punctuation, and having them spell the difficult words, these sentences should be written with the first.

By talking of the uses of dogs, the fourth sentence may be obtained. The same care respecting the spelling, punctuating and capitalizing should be exercised before the pupils are allowed to write the sentence. Call attention to new paragraph.

The pupils may be interested in naming tricks that dogs may be taught. In the mean time they may be led to speak of the intelligence of dogs. Thus the fifth sentence may be obtained. Pupils should be made to spell, and give necessary laws before writing.

Pupils may be led to relate anecdotes and give their opinions concerning the attachment that dogs manifest toward their masters. By such means the remaining sentences may be obtained which, after due preparation, may be written on the slates.

It will require at least three days to develop the foregoing composition and have it written on the slates.

A day should be spent in transcribing it to blankbooks, and another day in writing it on paper of proper size, for the inspection of the Principal.

The outline or plan according to which the composition was written should next be developed; the pupils should be led to see the agreement of the composition with the outline, and the advantages of having work planned before it is done.

Have pupils write the

OUTLINE.

The Dog.	{	Beginning (Introduction.)
		Size and Appearance,
		Uses,
		Intelligence,
		Affection,
		{ Anecdote for Closing (Conclusion).

(THIRD WEEK.)

By a similar plan write a composition taking "The Cow" as subject.

(FOURTH WEEK.)

Take "The Horse" as subject, and develop an *outline* for a composition using pupils' knowledge of the two outlines before developed.

Let each pupil write his own composition according to outline.

(FIFTH WEEK.)

Take "The Cat" as subject, and follow directions given for Third Week.

(SIXTH AND SEVENTH WEEKS.)

Take "The Sheep" as subject, and spend the time of two or three recitations in talking of this animal and of the plans of compositions written about other animals. Let pupils form plans and write compositions.

(EIGHTH WEEK.)

Take "The Squirrel" as subject, and follow directions given for Sixth and Seventh Weeks.

(THIRD MONTH.)

Teach pupils where and how to write and punctuate the dates and addresses of letters of friendship; where and how to sign them; where and how to write the superscription.

Much patient care will be required to do this month's work.

But little attention need be given to the subject matter of the letters. The arbitrary, conventional "*forms*" should occupy the attention of teacher and pupils.

Insist upon neatness and accuracy. The work may be done mainly on slates and cheap printing paper, and written with pencils.

Once a week, the pupils should be required to write with pens on good paper of appropriate size; fold the papers properly and enclose them in envelopes; direct them, and indicate by appropriate marks where the stamps should be placed. This will serve to test the value of the work done. The letters thus prepared should be submitted to the Principal.

Do not attempt more than the two kinds of work given below.

Aurora, Illinois,

May 3, 1876.

My Dear Aunt:

Your loving Nephew,

Charles Dean.

Aurora, Illinois,
Feb. 2, 1875.

J. H. Clark, Esq.,

Dear Sir:

Respectfully,

Chas. Dean.

Mrs. C. H. Freeman,
195 Randolph Street,
Chicago,
Illinois.

J. H. Clark, Esq.,
Prin. High School,
Ottawa,
Illinois.

(FOURTH MONTH.)

Have pupils write two letters, one to Mrs. C. H. Freeman. (The dear aunt); the other to T. H. Clark, giving two weeks to each.

In the first letter, (1) acknowledge the receipt of a letter: (2) inquire after the health of Mrs. Freeman: (3) note matters of interest which have transpired during the day; first, at home, in connection with (*a*) pets, (*b*) tasks; second, at school, in connection with (*a*) study, (*b*) play: (4) close.

(This kind of composition is closely related to narration. The teacher must see that the laws of method are not violated. While developing the work, the pupils should be made to select the points that are best suited to give a proper idea of the circumstances, and to determine how much should be said on each point.)

Let the pupils decide the subject matter of the second letter, the teacher requiring only that it be a letter of friendship. This should be done before beginning to write, and the plan decided upon should be closely and methodically followed.

THREE MONTHS.

(FOUR WEEKS.)

Reproduction from Memory of short, interesting narrations selected from some book or paper of proper grade with which the pupils are unacquainted.

PLAN.

Take a very short narration, characterized by a few decided points, and read it or have it read to the class. Call upon several pupils to reproduce the composition orally. Have the hard words spelled. Have pupils give laws respecting capitalizing and punctuating. Read the selection again and have pupils reproduce it on paper.

The time of one recitation will be required for the reproduction on paper of one selection. This should be care-

fully criticised by the teacher, and the children should rewrite it.

The second selection, if it be short, should be reproduced in writing after the first reading.

Be content only with having the thoughts (1) all reproduced in proper order; (2) expressed in good language, and (3) written according to the laws found in the Second Series.

It is not desirable to attempt the reproduction of long selections at this time. The teacher should work rather for accuracy and smooth expression.

From two to five selections should be reproduced each week.

(FOUR WEEKS.)

Transformation of Poetry to Prose.

Have pupils transform four short poems to prose. Select poems that narrate or describe; avoid didactic poems. Directions before given will serve for this work. Lead the pupils carefully at first; afterward require them to do like work unassisted.

(FOUR WEEKS.)

1.—Write a composition on "The Camel." Let pupils under the guidance of the teacher determine the outline for this composition from their knowledge of the animal as learned in Second Series of Animal Lessons. (See Outline No. 1, Appendix.) The pupils should write the composition.

2.—Write a letter and direct it. The pupils, under the guidance of the teacher, determine to whom and for what it shall be written.

3.—Reproduce at least three short selections.

4.—Transform one poem.

THREE MONTHS.

(FOUR WEEKS.)

1.—Write an account of a journey to Montgomery. A summary of the journey as learned in Place Work, First

Series, will serve as a plan for this work. Be careful not to make this composition too long.

- 2.—Reproduce three selections from memory.

(FOUR WEEKS.)

- 1.—Write four letters.

- 2.—Reproduce four selections from memory.

(FOUR WEEKS.)

- 1.—Write an account of a journey to Geneva. (See Place Work, First Series, for outline.)

- 2.—Reproduce four selections from memory.

- 3.—Transform one poem.

- 4.—Write two letters.

FIFTH GRADE.

After the subject of the composition has been decided upon, the pupils should in all cases be led to decide what points to make prominent; the order in which the points should be presented; the relative importance of the different points, and the attention required by each. Much time can be spent with profit in arranging all of the foregoing preliminaries in the form of an "Outline" before any writing is done. Thus will the pupils be trained at an early age in many of the important requirements of good composition. Impress upon the minds of the pupils, that a description should enable the hearer or reader to form a mental picture of the thing or place described, and they will readily choose the features that form the "outline" of the picture. Few persons can relate the events of an hour's experience without having to go back, and supply something of importance that had been forgotten; or give a description without omitting the mention of some part or feature without which a complete mental picture of the thing described cannot be formed. It is to be feared that much of our teaching is so lacking in method as to remedy little of the evil alluded to.

That this Series of Language Lessons may serve as a test of other work done, many of the "Subjects" are chosen from other branches taught.

The teacher who in this work finds it necessary to teach "Method" *de novo* may well look to his method of teaching with thought of improvement.

Much attention ought to be given in this grade to letter writing.

Impress the importance of brevity and clearness in business letters. In writing social letters pursue the following order:

1. Write of your correspondent and all affairs that relate to him.
2. Write of general topics of mutual interest.
3. Write of yourself as briefly as possible.

FOUR MONTHS.

(SIX WEEKS.)

1. A Description of a Picture.
(Developed, Compositions uniform.)
2. A Description of a picture.
(Outline only developed.)
3. A Description of a Picture.
(All work done by pupils.)
4. Two Business Letters.
5. Reproduce from four to eight selections.

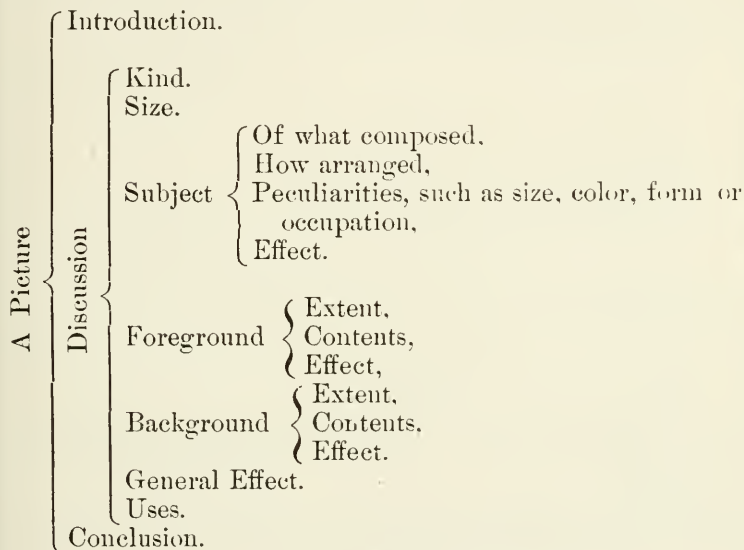
No descriptions are more easily developed than those of pictures.

Care should be exercised to select the right kind of picture. The subject of the picture for instance should be very prominent and easily understood.

By a little careful questioning an outline may be obtained.

Ask about the kind of picture; whether painting, engraving, wood-cut, or other kind. Ask about the size; about the

subject, whether one or more figures, and the most prominent; about position of principal figure or figures and the effect of same; about foreground and its accompaniments the background and its accompaniments the general effect of the picture; the use of pictures.



(SIX WEEKS.)

1. Narration of the events of a day at school.
2. Description of our school room.
3. A comparison between Ungulata and Carnivora.
4. Impromptu descriptions of plants, animals or other things that the whole school can examine ; as, pictures, the teacher's desk, a hanging basket, a window.

The first three of the above subjects are especially well adapted to giving to pupils good training in "Selection," "Method" and "Completeness."

The work indicated by the fourth specification will interest the children very much and test growing strength. The following was written by a girl 11 years old, in fifteen minutes.

THE SOUTHEAST WINDOW.

The Southeast window of our school-room is adorned with plants. On the window sill at the right is a small rose gera-

nium which is very fragrant. At the left is a horse-shoe geranium which at present is in bloom, and with its bright red flower forms a very pretty plant. In the middle is a large fuchsia, a very handsome plant. Suspended from the top of the window and directly above the fuchsia is a hanging basket, in the shape of an acorn cup. In it are planted smilax and a begonia. This window with its healthy plants, is the most pleasing to the eye, in the room.

JENNIE SUMMERS.

(FOUR WEEKS.)

- 1.—Description of the mole.
 - 2.—Reproduction of three selections.
 - 3.—Two weeks impromptu writing.
-

THREE MONTHS.

(FOUR WEEKS.)

1.—Write two letters ordering goods; two acknowledging the receipt of the letters; and two acknowledging the receipt of the goods.

2.—Write a note inviting a friend to spend an afternoon with you, and a note answering the same.

(FOUR WEEKS.)

- 1.—Describe the process of canning fruit.
- 2.—Write an account of a Journey to Chicago. (See Geography, First Series.)
- 3.—Give two weeks of impromptu work.

(FOUR WEEKS.)

- 1.—Spend two weeks in reproduction from memory.
- 2.—Spend two weeks in impromptu work. (Subjects Suggested: likenesses between certain animals, as the dog and cat; differences between animals; uses and care of the eye, ear, skin; description of plants or bouquets.)

THREE MONTHS.

(FOUR WEEKS.)

1.—Describe the picture found in Geography, page 21.

Teacher should develop outline.

2.—Let pupils imagine a picture illustrating a scene to be known as "Fruit Canning;" make an "outline," and write a description.

3.—One week of impromptu writing.

(FOUR WEEKS)

1.—Two weeks' work in reproducing from memory.

2.—Two weeks' drill in impromptu work.

(Subjects Suggested: description of a girl's hat or dress; of a knife; the bell; a picture; a book; the clock; the teacher's watch.)

(FOUR WEEKS.)

1.—Describe the city of Aurora.

2.—Describe the school yard.

3.—Spend one week in reviewing the laws for writing plural forms, after which let pupils write from memory with full illustrations.



FOURTH SERIES.

SIXTH GRADE.

The Object of this series is to give to pupils, by synthesis and analysis, a knowledge of the construction of the sentence by elements. The work is arranged from Greene's Grammar.

The work in language branches at this point. That branch which for two years has been known as the "Third Series," is continued as long as the pupil attends school, but for a few years is subordinated to the other branch, (the Fourth, Fifth, and Sixth Series,) which is a more technical study of the grammatical structure of the language. It is expected, however, that the pupils will steadily progress in composition writing, although devoting their attention chiefly to the other branch of language.

Impromptu compositions or reproductions from memory must be written weekly, and at least one long, more formally and systematically prepared composition must be written each term.

Subjects for impromptu compositions should be taken from the pupils' daily work in other branches of study. Human Body-, Plant-, Animal-, and Place-Work furnish many subjects for systematic, simple descriptions, which, if carefully made, will serve the double purpose of methodical reviews and excellent practice in writing English.

The reproductions from memory should be of narrations of incidents found in the pupils' work in Biography.

The more formal compositions should be on subjects connected more or less closely with the "work in course," such as descriptions of historical pictures; accounts of battles or campaigns; descriptions of books by authors named in the Reading Work; biographies; descriptions of processes; as, of Circulation, Digestion, or Respiration; descriptions of the larger groups of animals or plants, etc. Subjects are suggested hereafter in many places. These may be changed for others, if the teacher so desire.

FOUR MONTHS.

In the following four months the work should be only on simple sentences composed of elements but little involved:

(FIRST AND SECOND WEEKS.)

Drill on definitions and illustrations of a sentence; a telling sentence; an asking sentence; a commanding sentence; an exclaiming sentence.

Develop idea and definition of the subject; the predicate.

Drill on definitions and illustrations of the same.

(THIRD AND FOURTH WEEKS.)

Develop idea and definition of the base of the subject; a noun; a pronoun; the base of the predicate; a verb.

Drill on definitions and illustrations of the same, using such illustrations of the noun and pronoun as will show their use as subject and as base of subject; and such illustrations of the verb as will show its use as predicate and as base of predicate.

(FIFTH AND SIXTH WEEKS.)

Develop idea and definition of an element; an adjective element; an adjective.

Drill on definitions and illustrations of the same.

(SEVENTH WEEK.)

Develop idea and definition of an adverbial element (Definition I); an adverb (Definition I).

Drill on definitions and illustrations of the same.

(EIGHTH WEEK.)

Drill on previous seven weeks' work.

(NINTH AND TENTH WEEKS.)

Develop idea and definition of an adjective element; an adverbial element proper (Definition II).

Drill on definitions and illustrations of the same.

(ELEVENTH AND TWELFTH WEEKS.)

Develop idea and definition of a complex element; a simple element; an adverbial element (Definition in full); an adverb (Definition in full).

Drill on definitions and illustrations of the same. (In illustrating the complex element, use only the complex adverbial element.)

(THIRTEENTH WEEK.)

Drill on complex and simple adjective and objective elements.

(FOURTEENTH AND FIFTEENTH WEEKS.)

Develop idea and definition of a second class element; Relation-word; a first class element.

Drill on definitions and illustrations of the same. (In illustrating these elements, use adjective, adverbial, and objective elements.)

(SIXTEENTH WEEK.)

Develop the idea and definition of a Complement.

Drill on definition and illustrations of the same. (In illustrating complements, use only those of the first class.)

Composition.—Write a comparison between Insectivora and Rodentia (work developed).

THREE MONTHS.

In the following two terms, the work should be on difficult simple, compound, and complex sentences,—such sentences as occur in conversation, recitation, and books.

(FIRST MONTH.)

Drill on definitions and illustrations of a sentence ; a telling sentence ; an asking sentence ; a commanding sentence ; an exclaiming sentence ; the subject ; the predicate ; the base of the subject ; a noun ; a pronoun ; the base of the predicate ; a verb ; an element ; an adjective element ; an adverbial element ; an adverb ; an objective element ; a complex element ; a simple element ; a second class element, (Relation-Word) ; a first-class element ; a complement.

Composition.—Reproduce a short selection from memory.

(SECOND MONTH.)

Develop idea of and drill on a subject of the second class ; a subject of the first class (For Drill) ; a predicate of the second class ; a predicate of the first class (For Drill) ; a complement of the second class ; a complement of the first class (For Drill) ; a complex element of the second class ; a complex element of the first class (For Drill).

Drill on simple and complex elements of first and second classes.

(THIRD MONTH.)

Develop idea and definition of a compound subject of the first class; a relation-word (connective); a compound predicate of the first class; a compound subject of the second class; a compound predicate of the second class; compound adjective elements of the first and second classes; compound adverbial elements of the first and second classes; compound complements of the first and second classes.

Drill on definitions and illustrations of the above enumerated subjects. (Illustrate each subject immediately after the completion of its development and definition.)

Composition,—Write a careful description of some animal. (See outlines in Appendix.)

THREE MONTHS.

(FIRST MONTH.)

Develop idea and definition and drill on illustrations of a compound sentence; a simple sentence; a necessary element; a possible element; the base of a sentence; an element of the third class.

(Illustrate elements of the third class by the use of adjective, adverbial and objective elements; by complements, and by subjects of that class.

(SECOND MONTH.)

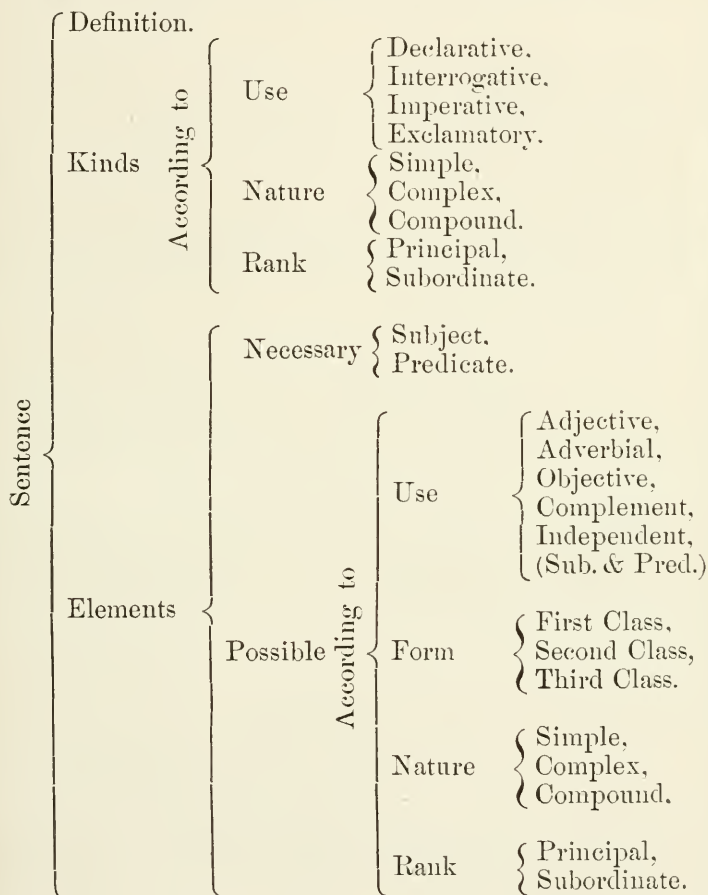
Drill on simple, compound, and complex elements of the first, second, and third classes.

Develop idea and definition, and drill on illustrations of a complex sentence; a compound sentence.

(THIRD MONTH.)

Develop idea and definition, and drill on illustrations of an independent element; simple, compound, and complex independent elements of the first, second, and third classes.

Make an outline to be used as a basis for review.



Composition.—Write a composition on the subject
 “Bones.” (See outline of bones in Human Body Work.)

FIFTH SERIES.

SEVENTH GRADE.

This series of language work is based on the construction of "The Sentence," as given in the Fourth Series. The pupils must be kept familiar, therefore, with the analysis of simple sentences.

NOUNS.—(THREE MONTHS.)

ORDER OF PRESENTATION.

Review.—(1) Definition of (*a*) noun, (*b*) proper noun, (*c*) common noun; (2) law for writing proper nouns.

New Work.—(1) Definition of (*a*) verbal noun, (*b*) abstract noun, (*c*) collective noun, (*d*) ordinary noun; (2) logical outline of **Kinds** of nouns. (Pupils must be required to make lists illustrating the different kinds of nouns.)

Review.—(1) Definition of possessive form, and law for writing the same; (2) definition of (*a*) ordinary form,

(*b*) singular form, (*c*) plural form; (3) general law for formation of plural; (4) special laws for formation of plurals.

New Work.—(1) Reasons for changes of forms of nouns; (2) law for formation of plurals of (*a*) compound words, (*b*) figures, (*c*) letters, (*d*) marks; (3) lists of nouns (*a*) whose plurals are formed irregularly, (*b*) that retain their foreign plurals, (*c*) that are alike in singular and plural forms, (*d*) that have no plural, (*e*) that have no singular, (*f*) whose singular forms end in *o*; (4) list of exceptional possessive plural forms; (5) logical outline of **Forms** of nouns.

Review.—Use of nouns as base of subject.

New Work.—(1) Use of noun as (*a*) subject, (*b*) complement, (*c*) adjective, (*d*) idea word in second class element, (*e*) adverb, (*f*) independent element; (2) logical outline of **Uses** of nouns.

Review.—Definitions of base words and derivatives.

New Work.—(1) Lists of nouns from (*a*) verbs, (*b*) adjectives, (*c*) other nouns; (2) lists of prefixes and suffixes used in deriving nouns; (3) list of original nouns; (4) logical outline of **Sources** of nouns.

Practical Applications.—Avoid errors (1) in pronouncing and writing possessive forms of nouns; (2) in writing plural forms of nouns; (3) in capitalizing and abbreviating nouns.

Logical outline of **Nouns**.

Nouns	Def.	Proper				
	Kinds	Common	{	Def., Law for writing.		
				Def. Ordinary, Abstract, Verbal, Collective.		
	Forms	Ordinary	{	Def.	Singular	
		Possessive	{	Def.	Plural { General law, Special laws.	
				Law		
	Uses	Subject, Object, Idea word in a second class element, Adverb, Independent element,				
		Adjective	{	Direct	{ Ordinary, Appositive, Possessive.	
	Indirect			{ Complement.		
	Sources	{	Original	{	Connectives	{ By prefixes, By suffixes, Without change
Derived			Verbs			
from			Adjectives			
			Nouns			
Errors to be avoided		{	Wrong capitalization, Wrong abbreviation, Wrong formation of possessive and plural forms.			

Composition.—Description of the picture representing the landing of Columbus. The picture should be talked about at length and an “outline” prepared before the pupils write. Pupils should be expected to follow the “outline” closely.

Any other historical picture may be selected, if the teacher and pupils so choose. (See suggestions for “outlines” in Appendix.)

VERBS.—SIX MONTHS.**ORDER OF PRESENTATION.**

Review.—Definition of a verb.

New Work.—I.—(1) Time of action or assertion represented by the verb; (2) how represented, (*a*) structural parts, (*b*) relation words; (3) definition of structural parts; (4) time represented by each structural part; (5) name of each structural part, (*a*) present, (*b*) progressive, (*c*) past, (*d*) relative; (6) law for formation of structural parts; (7) logical outline of **Structural Parts** of verbs.

II.—(1) Definition of (*a*) a regular verb, (*b*) an irregular verb, (*c*) a defective verb*; (2) definition of (*a*) a transitive verb, (*b*) an intransitive verb, (*c*) an auxiliary verb*; (3) logical outline of **Kinds** of verbs.

III.—(1) Reasons for changes of forms of verbs: (2) definition of tenses, (*a*) absolute present, (*b*) absolute past, (*c*) absolute future, (*d*) relative present, (*e*) relative past, (*f*) relative future: (3) definition of (*a*) passive form; (*b*) progressive form; (*c*) emphatic form; (*d*) common form; (*e*) idiomatic forms (*aa*) hypothetical, (*bb*) idiomatic-passive, (*cc*) use of an expletive, (*dd*) idiomatic use of the verb *to be*: (4) reasons for learning structural parts of verbs: (5) structural parts of all the irregular verbs: (6) logical outline of **Forms** of verbs.

Review.—Use of verbs (1) to express action; (2) as copula.

* Pupils should learn the list of these verbs and the structural parts of each.

New Work.—I.—(1) Use of verb as relation word (auxiliary); (2) use of verb with *to* before it (*a* as subject, (*b*) as object, (*c*) as copula, (*d*) as complement, (*e*) as adjective element, (*f*) as adverbial element, (*g*) as predicate of third class objective element, (*h*) in repetition of the subject in the predicate; (3) use of progressive structural part (*a*) as adjective, (*b*) as adverb, (*c*) as noun; (4) logical outline of **Uses** of verbs.

II.—(1) Lists of verbs derived from (*a*) nouns, (*b*) adjectives, (*c*) adverbs, (*d*) other verbs; (2) lists of prefixes and suffixes used in deriving verbs; (3) list of original verbs; (4) logical outline of **Sources** of verbs.

Practical Applications.—Avoid the use of (1) relative structural part for past; (2) past structural part for relative; (3) past tense when referring to unchangeable facts; (4) present tense when referring to future events; (5) common form when stating an hypothesis; (6) singular form for plural form; (7) wrong relation word (auxiliary); (8) wrong verb; (9) redundant verb; (10) improper contraction.

Logical outline of **Verbs**.

Verbs	{	I.	Definition,
		II.	Structural Parts,
		III.	Kinds,
		IV.	Forms,
		V.	Uses,
		VI.	Sources,
		VII.	Practical Applications.

II. <i>Structural Parts.</i>	{	Definition.	
		Why learned.	
		Time represented	{ Present,
			{ Past { Absolute,
			{ Relative.
		How made	{ Law,
	{	Names	{ Exceptions.
			{ Present,
			{ Progressive,
			{ Past,
		{ Relative.	

III. <i>Kinds</i> according to	{	Structure	{ Regular } Law. { Irregular } Lists. { Defective }
		Use	{ Transitive, Intransitive, Relation words (auxiliary).
IV. <i>Forms</i>	{	Definition	{ Def. } { How made }
		Common	{ Relation words } Office, List. { Structural parts } Office.
			{ Time represented } Present Past Future { Absolute, Relative.
	{	Definition	{ Def. } { How made }
		Progressive	{ Relation words } Office, List. { Structural part } Office.
			{ Time represented } Present Past Future { Absolute, Relative.
	{	Definition	{ Def. } { How made }
		Passive	{ Relation words } Office, List. { Structural part } Office.
			{ Time represented } Present Past Future { Absolute, Relative.
	{	Definition	{ Def. } { How made }
		Emphatic	{ Relation words } Office, List. { Structural part } Office.
			{ Time represented } Present, Past.
V. <i>Uses</i>	{	Definition	{ Def. } { Kinds { Hypothetical, Idiomatic-passive, Expletive, "To be." }
		To assert	{ Copula, Predicate verb, Relation word (auxiliary).
	{	To assume	{ Noun, Adjective, Adverb.
		With <i>to</i>	{ Subject, Object, Complement, Copula, Predicate of third class element, Adjective element, Adverbial element.
VI. <i>Sources</i>	{	Original words,	
		Derived from	{ Nouns, Adjectives, Adverbs.
VII. <i>Errors</i> to be avoided	{	Wrong verb,	
		Wrong relation word,	
		Wrong form,	
		Wrong contraction,	
		Use of redundant verb.	

Remark.—In giving illustrations for the uses of verbs, pupils should be required to give complete sentences containing the verbs in illustration. In illustrating verbs according to structure, they should be required in all cases to give the structural parts.

Composition.—Narrate the events of Longfellow's "Evangeline." This poem should be read by the pupils, its plot determined, and an outline made under the guidance of the teacher. The "Introduction" may be either a brief sketch of Longfellow's life, or a brief history of Acadia from discovery to date of plot. Pupils may consult the poem when writing, but should be required to follow the prepared outline closely.

EIGHTH GRADE.

PRONOUNS.—(THREE MONTHS.)

ORDER OF PRESENTATION.

Review.—Definition of pronoun.

New Work.—I.—(1) Lists of pronouns (*a*) which only represent nouns; (*b*) which limit as well as represent nouns, (*c*) which show relation as well as represent nouns.

II.—(1) Reasons for changes of forms of pronouns; (2) definitions of (*a*) subjective form, (*b*) possessive form, (*c*) objective form; (3) list of pronouns which change their forms; (4) outline of **Forms** of pronouns.

Review.—Use of pronoun as base of subject.

New Work.—I. (1) Use of pronoun as (*a*) object, (*b*) complement, (*c*) idea word in a second-class element, (*d*) adjective, (*e*) relation word; (2) outline of **Uses** of pronouns.

II.—(1) Lists of pronouns derived from (*a*) adjectives, (*b*) nouns; (2) list of original pronouns.

Practical Applications.—Avoid the use of (1) wrong pronoun; (2) objective form as complement; (3) objective form in compound subject; (4) objective form as subject of an interrogative sentence; (5) objective form as subject of a predicate understood; (6) subjective form as idea word in a second class element; (7) subjective form as object of a transitive verb; (8) subjective form in compound objective element; (9) plural pronoun with singular antecedent; (10) a pronoun and its antecedent as subject of same verb; (11) wrong form of pronoun with an appositive; (12) two styles of pronoun as *thou* and *you* standing for the same noun; (13) *I* before *you*; *they*, *he*, *she*, or *it*, as subject; (14) *me* before *them*, *him*, *her*, or *it*, as object, or as the idea part of a second class element.

Logical outline of **Pronouns**.

Pronouns	Definition.	
	Kinds	{ Those having a single office, Those having a double office.
	Forms	{ Singular { Subjective, Objective, Possessive.
		{ Plural { Subjective, Objective, Possessive.
	Uses	{ Subject, Object, Complement, Idea word in a second class element, Adjective, Relation word.
	Sources	{ Original words, Derived from { Nouns, Adjectives.
Errors to be avoided		{ Wrong form, Wrong pronoun, Change of form, Giving precedence to wrong pronoun.

Composition.—Write a description of some book by one of the authors studied in the Reading Work. See outline No. 2, Appendix.

ADJECTIVES.—(THREE MONTHS.)

ORDER OF PRESENTATION.

Review.—Definition of adjective.

New Work.—I.—(1) Definition of qualifying adjectives (*a*) verbal, (*b*) proper, (*c*) ordinary : (2) definition of limiting adjectives (*a*) possessive; (*b*) numeral (*aa*) cardinal, (*bb*) ordinal, (*cc*) multiplicative; (*c*) ordinary : (3) definition of comparable adjectives: (3) definition of incomparable adjectives: (5) logical outline of **Kinds** of adjectives.

II.—(1) Reasons for changes of forms of adjectives ; (2) definition of (*a*) comparative proper form, (*b*) superlative form, (*c*) ordinary form ; (3) laws for formation of comparative forms ; (4) list of adjectives whose comparative forms are irregularly made ; (5) logical outline of **Forms** of adjectives.

Review.—Use of adjectives to limit noun or pronoun.

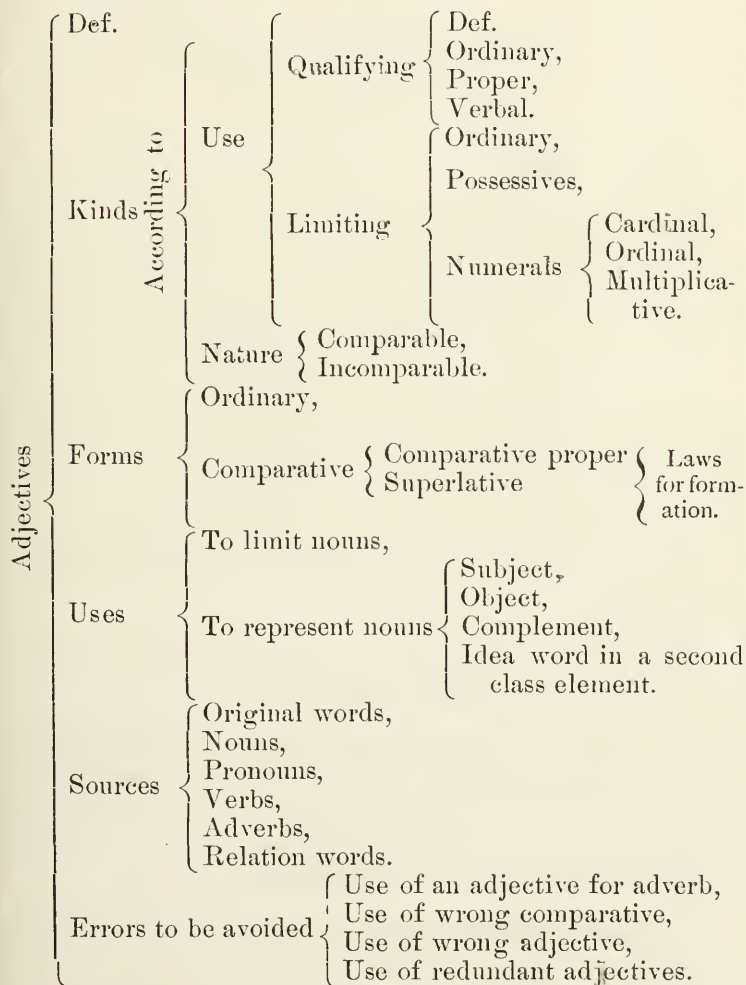
New Work.—I.—(1) Use of adjectives as pronouns, (*a*) subject, (*b*) object, (*c*) idea word in a second class element ; (2) logical outline of **Uses** of adjectives.

II.—(1) Lists of adjectives derived from (*a*) verbs, (*b*) nouns, (*c*) pronouns, (*d*) adverbs, (*e*) relation words, (*f*) other adjectives ; (2) lists of prefixes and suffixes used in deriving adjectives ; (3) lists of adjectives derived from other parts of speech without the use of prefixes or suffixes ; (3) list of original adjectives ; (5) logical outline of **Sources** of adjectives.

Practical Applications.—Avoid the use of (1) wrong adjective ; (2) wrong comparative forms ; (3) comparative

incorrectly formed ; (4) double comparatives ; (5) adjectives to limit verbs ; (6) adjectives to limit adjectives ; (7) redundant adjectives.

Logical outline of **Adjectives**.



Composition.—Write a comparison between Washington and Lincoln. A good outline should be made before any writing is done. The teacher should prepare the pupils for

this work by briefly reviewing the biographies of Washington and Lincoln.

ADVERBS.—(SIX WEEKS.)

ORDER OF PRESENTATION.

Review.—Definition of adverb.

New Work.—I—(1) Definition of adverbs of (*a*) manner, (*b*) cause, (*c*) time, (*d*) place, (*e*) purpose, (*f*) negation, (*g*) degree; (2) definition of comparable adverbs; (3) definition of incomparable adverbs; (4) logical outline of **Kinds** of adverbs.

II—(1) Reasons for changes of forms of adverbs; (2) definition of (*a*) comparative proper form, (*b*) superlative form, (*d*) ordinary form; (3) law for formation of comparative forms; (4) list of adverbs whose comparative forms are irregularly made; (5) logical outline of **Forms** of adverbs.

Review.—Uses of adverbs to limit (1) verbs, (2) adjectives, (3) adverbs.

New Work.—I—(1) Use of adverb as a relation word; (2) logical outline of **Uses** of adverbs.

II—(1) Lists of adverbs derived from (*a*) verbs, (*b*) adjectives, (*c*) nouns, (*d*) relation words; (2) lists of prefixes and suffixes used in deriving adverbs; (3) list of adverbs derived without the use of prefixes or suffixes; (4) list of original adverbs; (5) logical outline of **Sources** of adverbs.

Practical Applications.—Avoid the use of (1) wrong comparative forms; (2) double comparatives; (3) an adverb as a complement; (4) an adverb as an adjective; (5) two direct negatives; (6) *but*, *only* or *hardly* after *not*; (7) *no* for *not*; (8) *how* for *what*.

Logical outline of **Adverbs**.

Adverbs	Def.					
	Kinds	According to	Use	{ Manner, Cause, Time, Place, Purpose, Negation, Degree.		
						Nature
	Forms		Ordinary,	Comparative,	{ Comparative proper Superlative	
						Uses
	Sources	{ Original words, Nouns, Adjectives, Verbs, Relation words, Adverbs.				
			Errors to be avoided	{ Use of an adverb for an adjective, Use of wrong adverb, Use of wrong form, Use of an adverb for a pronoun, Use of redundant adverbs.		

Composition.—Write a comparison between the first settlers of Massachusetts and those of Virginia. The teacher should see that the pupils know about these people before an outline for the composition is attempted. Let pupils review the biographies of Miles Standish and John Smith.

RELATION WORDS.—(SIX WEEKS.)

ORDER OF PRESENTATION.

Review.—Definition of a relation word.

New Work.—Definition of (1) co-ordinate relation words
(a) uniting, (b) rejecting, (c) alternative ; (2) subordinate rela-

tion words that show (a) the relation of place or direction, (b) the relation of time or condition, or both, (c) an attributive relation, (d) a pronominal relation, (e) an adverbial relation. Outline of **Kinds** of relation words.

Review.—(1) Forms of pronouns and verbs ; (2) uses of relation words.

New Work.—(1) Lists of relation words derived from (a) verbs, (b) pronouns, (c) adverbs ; (2) list of original relation words ; (3) outline of **Sources** of relation words.

Practical Applications.—Avoid the use of (1) *or* after *neither* or *no* ; (2) *nor* for *or* ; (3) *in* for *into* ; (4) *up* for *upon* ; (5) *between* for *among* ; (6) *to* for *at* ; (7) *and* for *but* ; (8) *with* or *in* for *on* ; (9) *upon* for *over* ; (10) *what* for *that* ; (11) a dependent proposition without a relation word.

Logical outline of **Relation Words.**

Relation Words	Definition.	
	Kinds	Co-ordinate { Uniting, Rejecting, Alternative.
		Subordinate { Relation words proper, Pronouns, Adverbs, Copulative verbs, Auxiliary verbs.
	Forms	(Review Pronouns and Verbs.)
	Use	To show relation.
	Sources	Original words,
		Derived from { Pronouns, Adverbs, Verbs.
	Errors to be avoided	{ Wrong correlative, Wrong word, Omission of relation word.

Composition.—Write an account of a journey from Aurora to the Mississippi River, by rail to Peru via Ottawa, thence by water to destination. See Place Lessons, First Series, for outline.

NINTH GRADE.

(*FOUR MONTHS.*)

Review the Fifth Series giving particular attention to **Forms** and **Practical Applications.**

Composition.—Write two compositions, taking for subjects "Rivers," and "Mountains."

SIXTH SERIES.

(*THREE MONTHS.*)

Review the Fourth Series.

It will require one month to analyze sentences that involve the different uses of the verb with *to* before it, and another month to analyze sentences that involve the different uses of

the *progressive structural part* of verb. Obtain sentences for analysis from the reading or other text book.

Composition.—Write a brief history of the Missouri Compromise.

(**THREE MONTHS.**)

1st and 2d Months.—Review the prefixes, suffixes and roots given in the Fourth and Fifth Reader Work. Complete the lists of English and Latin prefixes and suffixes and add to them Greek prefixes, suffixes and roots from Swinton's Word Analysis. Associate the above work with a review of the **Sources** of the different parts of speech as studied in the FIFTH SERIES.

3d Month.—Review all the Figures of Rhetoric as studied in the Reading Work. Make and find numerous examples of each.

Composition.—Write, weekly through the term, scientific descriptions of animals and plants for careful work in punctuation. This work should involve especially the use of the dash, the brace, the parenthesis, and the colon.

SEVENTH SERIES.

HIGH SCHOOL.

The work of this Series is a continuation of the work of the Third Series.

It extends through three years, four or five weekly recitations of thirty to forty-five minutes each.

Pupils have already had considerable practice in writing essays in Description, Narration and Analysis. Their work, however, has been almost wholly the expression in language of what they have learned in connection with their other studies, and has been almost entirely free from the technical terms of Rhetoric. Hereafter, to a great extent, they must themselves gather the needed information for their essays, and must acquaint themselves with the meanings and applications of all necessary technical terms. The subjects assigned for essays should be such as will demand much investigation.

It will be found profitable to devote the first year to further work in simple Description, Simple Narration, and Analysis.

FIRST YEAR.

FIRST TERM.—(FIRST MONTH.)

Day's Praxis.—Chapters I, II, VII, and VIII to page 55; also, Simple Description in Appendix V.

Essays.—Subject: The Coulter Opera House; Chicago; or some similar theme.

An Impromptu Composition in Description to be written in fifteen minutes, the rest of the recitation hour being given to the reading and brief criticism of the same.

A Reproduction from memory.

Short lessons in Praxis should be recited daily for a week, the outlines for essays being meanwhile prepared, presented criticised, and approved. In preparing the outlines, pupils should be led to see the necessity of observing the Laws of Selection, Method and Completeness.

The essays should be presented at the first recitation of the third week, and the rest of the month should be spent in reading them in class, criticising, rewriting etc.

No draft of essay should be accepted as final till faultless in spelling. use of capitals, punctuation, paragraphing, penmanship so far as practicable, and, so far as may be reasonably expected, free from violations of the three laws above named.

NOTE.—The *teacher* must see to it that in description, the pupil never loses sight of the object in view, to-wit : To enable the reader or hearer to form a clear mental picture of the object described. The *pupil* too, while writing, should frequently question himself: "Is my language fitted to give to the reader a clear idea of the object described?" "Had I never seen the object, would such a description as I have given enable me to form a clear mental picture of it?" By such self-questioning, indispensable to the best results in the work in hand, the pupil will receive, in addition, valuable culture in imagination and judgment. When the theme demands it, the teacher should be prepared to assist the pupils to find the information needed, and should be watchful that they do not fall into the pernicious habit of copying the language as well as appropriating the information.

(SECOND MONTH.)

Day's Praxis.—Chapter VIII finished and together with what was learned last month, reviewed.

Essay.—Subject: The Home I Wish to Have, or some like theme for imaginative description.

An Impromptu Composition.

A Reproduction from Memory.

The outlines of essays should be prepared, presented, criticised and approved by the end of the first week. Let pupils be trained to be quick to detect any violation of either of the laws named above, as also, any inelegance of diction.

The essays should be presented at the first recitation of the third week and take the same course as in last month.

(THIRD MONTH.)

Day's Praxis.—Chapters III, and IV to paragraph 34, and Simple Narration, Appendix V.

Essay.—Subject: Glass-making, Zinc-making, or some similar theme.

An impromptu Essay and a **Reproduction** from memory, as before.

The outlines and essays should take the same course as last month.

While preparing outlines pupils should be led to perceive the difference between the *purpose* in Narration and in Description, and the difference in the *requirements* of the Laws of Unity, Selection, Method and Completeness.

In writing an essay in narration the pupil is to imagine himself addressing some one and often to question himself: Am I presenting this theme in such a way that the imagination of the reader will have no difficulty to conceive the actual changing?

(FOURTH MONTH.)

Day's Praxis.—Chapter IV finished and with what was learned last month, reviewed.

Essay.—Subject: Memories of a Moss-rose, or History of a Dew-drop.

An Impromptu Essay and a **Reproduction** as before.

SECOND TERM.—(FIRST MONTH.)

Day's Praxis.—Chapters X, XI to paragraph 79, and Analysis, Appendix V.

Essay.—Subject: Vertebrates, Birds, or some similar theme.

An Impromptu Essay on some simple subject in Division, and a **Reproduction** from memory.

In the preparation of outlines pupils are to be led to a

full apprehension of what is required in Division by the Laws of Unity, Selection, Method and Completeness.

The fact should be made clearly to appear that Analysis in both its parts,—Division and Partition,—has reference rather to outlining themes than to a full presentation of them, the filling up being Description or Narration, already studied.

(*SECOND MONTH.*)

Days Praxis.—Chapter XI finished.

Essay.—Subject: The Rose Family; or Exogenous Plants.

An Impromptu Essay and a **Reproduction** from memory.

(*THIRD MONTH.*)

Day's Praxis.—Work of first and second months reviewed.

Essay.—Subject: Forms of Government; or The Orders of Architecture.

An Impromptu Essay and a **Reproduction** from memory.

THIRD TERM.—FIRST MONTH.

Day's Praxis.—Chapter X reviewed, and Chapter XII to paragraph 85.

Essay.—Subject: The Telescope; or The Human Eye.

An Impromptu Essay on some familiar subject in Partition and a **Reproduction** from memory.

In preparing outlines, (See Outline No. 3, Appendix,) the difference in the requirements of the four Laws in Division and in Partition should be clearly shown.

The criticisms of the Essays should be primarily and very largely as above in reference to violations of these Laws.

(*SECOND MONTH.*)

Day's Praxis.—Chapter XII finished.

Essay.—Subject: The steam-engine, or A Watch.

An **Impromptu Essay** and a **Reproduction** from memory.

(*THIRD MONTH.*)

Day's Praxis.—Chapters X and XII reviewed.

Essay.—Subject: The Electric Telegraph; or the Planetary System.

An **Impromptu Essay** and a **Reproduction** from memory.

SECOND YEAR.

During this and the following year pupils should be called on quite frequently to read essays before the school as a part of the Friday afternoon Rhetorical Exercises. Essays in Confirmation should be memorized and spoken.

FIRST TERM.—(FIRST MONTH.)

Day's Praxis.—Chapter XIII.

Essay.—Exemplify a Rodent in the Rabbit; or Marsupials in the Kangaroo.

An Impromptu Essay in Simple Description and a **Reproduction** from memory.

In the preparation of outlines, the greatest care should be given to the requirements of the four Laws so frequently alluded to before. In the writing of the themes, after they have been outlined in accordance with these laws, the filling—what is said on each of the selected properties—will be found to come under one or another of the preceding processes, to wit: Description, Narration, or Analysis.

(*SECOND MONTH.*)

Day's Praxis.—Part II, Chapters I and II.

Essay.—Exemplify a Vine in the Grape.

An **Impromptu Essay** in Simple Description, the theme to be imaginative, and a **Reproduction** from memory.

(*THIRD MONTH.*)

Day's Praxis.—Part II, Chapter III, and a review of the Praxis Work of the two preceding months.

Essay.—Exemplify Birds of Prey in the Hawk.

An **Impromptu Essay** in Simple Narration and a **Reproduction** from memory.

(*FOURTH MONTH.*)

Day's Praxis.—Chapter XIV to paragraph 103, omitting all abstract themes.

Essay.—Subject: The Cat and the Cow; or The Oak and the Pine.

An **Impromptu Essay** in Simple Narration, the theme to be imaginative, and a **Reproduction** from memory.

In outlining and in writing the first theme in Comparison and Contrast, as the first theme in each of the former processes of Explanation, too close attention cannot be given to the requirements of the four Laws.

SECOND TERM.—(FIRST MONTH.)

Day's Praxis.—Chapter XIV, paragraph 103, first three themes.

Essay.—Subject: A Cloud and a Fog; or Europe and Africa.

An **Impromptu Essay** in Analysis by Division, and a **Reproduction** from memory.

(SECOND MONTH.)

Day's Praxis.—Chapter XIV, paragraph 103, the remaining themes not abstract.

Essay.—Subject: The Plant and The Animal; or The Earth and the Moon.

An **Impromptu Essay** in Analysis by Partition, and a **Reproduction** from memory.

The process of explanation employed in the essay written this month, may be Direct Comparison and Contrast, for part of the class, and for the rest, Analogical Comparison and Contrast.

(THIRD MONTH.)

Day's Praxis.—Review of last three months' work.

Essay.—Subject: Washington and Napoleon; or Irving and Prescott.

An Impromptu Essay in Exemplification and a **Reproduction** from memory.

(THIRD TERM.—FIRST MONTH.)

Day's Praxis.—Chapter XV to paragraph 109, and paragraphs 111, 112, and 136.

Essay.—Subject: A Republic guarantees individual freedom.

An **Impromptu Essay** in Direct Comparison and Contrast, and a **Reproduction** from memory.

Pupils should be led clearly to understand the object to be effected in Confirmation and the means by which it is to be effected; also the state of mind of the person addressed, and the different Kinds and applications of Proof.

Two weeks may be profitably spent in outlining Chapter XV of the Praxis, and in illustrating different Proofs as to Object, (Direct and Indirect,) and as to Kind (Analytic and Synthetic.) The remaining two weeks may be given to writing essays and reading and criticising them in class, as in previous work.

In the theme assigned only Analytic Proofs are to be considered.

(SECOND MONTH.)

Day's Praxis.—Paragraph 113, and a Review of last month's work.

Essay.—Subject: A triangle cannot have more than one angle as great as a right angle.

An Impromptu Essay in Analogical Comparison and Contrast, and a **Reproduction** from memory.

During this month several further illustrations of different Proofs as to Object and as to Kind should be given.

In the theme assigned only Intuitive Proofs are to be considered.

THIRD MONTH.

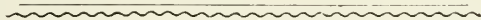
Day's Praxis.—Paragraphs 114, 115, 116, and Review of the work of the two preceding months.

Essay.—Subject: The American Indians are destined to annihilation as distinct tribes.

An Impromptu Essay in Simple Description and a **Reproduction** from memory.

Further illustrations of different Proofs as to Object and as to Kind should be given.

Only A Priori Proofs are to be considered in this month's theme.



THIRD YEAR.



FIRST TERM.—(FOUR MONTHS.)

Day's Praxis.—Chapters IX, V, VI, and in Part II, Chapter IV; and Review of Chapters III, VI, VII, X, XI and XII.

Five Essays.—One in each of the following Processes: Abstract Description; Abstract Narration; Complex Narration; Analysis by Division (Theme Abstract); Analysis by Partition (Theme Abstract.)

Four Impromptu Essays, and Four Reproductions from memory of short poems or poetical selections from Longfellow and Whittier.

The following themes are suggested for the essays not impromptu.

ABSTRACT DESCRIPTION.

Sincerity, Cheerfulness, Courage, Industry, Egotism.

ABSTRACT NARRATION.

Narration of a day-dream, The acquisition of knowledge, The formation of habit, The spread of popular delusions.

COMPLEX NARRATION.

The influence of climate on national character, The influence of the press, The power of custom, The necessity of recreation.

ANALYSIS BY DIVISION.

Motives, Temperament, Science, Poetry, Beauty.

ANALYSIS BY PARTITION.

True Greatness, Resentment, Civilization, Heroism.

The Impromptu essays are to be in the following Processes: Simple Description (Theme imaginative); Simple Narration; Analysis by Division (Theme Simple); and Analysis by Partition (Theme Simple.)

SECOND TERM.—(THREE MONTHS.)

Day's Praxis.—Chapters XIII, XIV, and what has been learned of Chapter XV in Review; and in Advance, Chapter XV, paragraph 117 to 126, and in Part II, Chapter V, and to paragraph 171 Chapter VI.

Four Essays.—One in each of the following Processes: Exemplification (Theme abstract); Comparison and Contrast (Theme abstract); Confirmation (The Proof to be Signs, either Testimony or Authority, or both): and Confirmation (The proof to be by examples, (either Real or Invented, or both.)

Three Impromptu Essays and three Reproductions from memory,—one from each of the poets, Lowell, Bryant, and Saxe.

The following Themes are suggested for the essays not impromptu.

EXEMPLIFICATION.

Patriotism, Mutability of Popular Favor, Prodigality, The Ingratitude of Republics.

COMPARISON AND CONTRAST.

Policy and Principle, Knowledge and Belief, Talent and Genius, Poetry and Painting.

CONFIRMATION.

Washington was a true patriot.

Bonaparte was ruled by selfish ambition.

Truth is stronger than error. Labor is the salt of life.

Habit is second nature. Guilt has no holiday. Prosperity gains friends. Relaxation is necessary.

The Impromptu Essays are to be in the following Processes:

Exemplification (Theme Simple); Direct Comparison and Contrast (Theme simple); and Analogical Comparison and Contrast (Theme Simple).

THIRD TERM.—(THREE MONTHS.)

Day's Praxis.—Remainder of Chapter XV; in Part II, Remainder of Chapter VI; and in review all the work of the year.

Three Essays in Confirmation.

Three Impromptu Essays in Confirmation and **three Reproductions** from memory, one from each of the poets Mrs. Hemans, Scott, Tennyson.

The subjects of the essays not impromptu may be selected from the following:

The execution of Major Andre was justifiable.

The power of pardon ought not to be intrusted to the Executive.

Rotation in office is expedient.

Men of thought are of greater service to the world than men of action.

Immigration ought to be encouraged.

A universal language is desirable.

Games of chance are morally right.

Poverty is more favorable to character than riches.

In the themes of this term half the class should take the affirmative and the rest the negative of each question. Those presenting the best arguments on either side may be selected to give them in writing, or orally, as a part of the closing exercises of the undergraduate classes.

EIGHTH SERIES.

Pupils have already made some acquaintance with English and American authors in connection with the preceding language work. They are now to enter upon a fuller and more critical study of some of the best productions in our language.

Pupils should be encouraged to purchase, during this year, quite a number of books needed in preparation of lessons, or for gaining additional knowledge of authors studied. Each will thus form the nucleus of a private library, to be developed, it is hoped, as he grows in years and in love of letters.

(FIRST MONTH.)

The first two weeks should be spent in reading the two articles entitled, *Theory of Beauty*, and *The Philosophy of Style*, in Hunt's *English Literature*, and in reading in class and comparing, in respect to style, three or more of the following short selections:

Sorrow for the Dead.—Irving.

The Chambered Nautilus.—Holmes.

Address to the Moon.—Ossian.

Thoughts for a Young Man.—Horace Mann.

Pyramus and Thisby.—Saxe.

Death of Little Nell.—Dickens.

Fall of Cardinal Wolsey.—Shakespeare.

The Right Improvement of Time.—Sam Johnson.

Elegy Written in a Country Churchyard.—Gray.

During this time pupils should review Day's Praxis, Part II, and apply the principles therein, in making criticisms.

As a result of this study and criticism the following Plan of Criticism may be developed, to be used, with slight modifications, in future work.

PLAN OF CRITICISM.

I.—Writer.—(1) Brief biography; (2) department of literature; (3) rank in that department; (4) rank in general literature; (5) surroundings, literary and other; (6) character, as judged by writings; (7) miscellaneous.

II.—Form of Discourse.—Oratory, Fiction, Poetry, or other form.

III.—Rhetorical Elements.—(1) In Explanation, Are the laws of Unity, Selection, Method and Completeness observed?

(2)—In Confirmation, (a) Is the proposition clearly stated? (b) Are the various kinds of proofs arranged in proper order? (c) Are the introduction and peroration suited to the theme?

(3)—In Style, (a) Is the aim of the writer apparent at once? (b) Is the thought sententious or connected and flowing? (c) Is the expression affected or natural,—adapted to the character of the writer, the subject and the occasion? (d) Is the style figurative or plain? (e) Are the figures familiar and intelligible? (f) What are the favorite figures? (g) Are the figures suited to the thought? (h) Are the figures consistent with themselves? (i) Is there redundancy of words or figures? (j) Is the style original or imitative? (k) If fiction,

the plot; (7) If poetry, the scene, the plot, the kind, the form, the department, the kind of verse and its adaptation to the expression of the thought.

IV.—Sentence Elements.—Is the succession of sounds smooth and pleasant? (2) Are the sentences compact or loose, simple or involved? (8) Are the different members placed in proper order? (4) Are the relation words properly placed? (5) Are parenthetical clauses introduced with care and judgment?

V.—Words.—(1) History, (2) affinities, (3) forms, (4) meaning, (5) use, (6) euphony, (7) imitative properties, (8) symbolic properties, (9) Anglo-Saxon or foreign, (10) unequivocal or the opposite, (11) simple and specific, or generic.

VI.—Biographical and Historical Allusions.

VII.—(1) Circumstances under which written, (2) probable object in writing. (3) Is the object attained?

In the next two weeks have the class memorize two or more of the following: *Excelsior*, *The Psalm of Life*, *The Day is Done*, *The Launching of the Ship*, *Foot-steps of Angels*. Have them also study and criticise *Evangeline*, *Hiawatha*, or *The Courtship of Miles Standish*.

Essay.—Subject: An Analysis of *Tales of a Way-side Inn*.

(SECOND MONTH.)

Have the class memorize *Thanatopsis* and *The Death of The Flowers*. Have them also study and criticise *God's First Temples*.

Have the class study and criticise *The Wonder Book for Girls and Boys*, *Tanglewood Tales*, or *The Scarlet Letter*. Have them read out of class the other two.

Have pupils give orally in class a short outline or description of each work read out of class.

Essay.—Subject: Criticism of the last work read and criticised in class.

(THIRD MONTH.)

Have class study and criticise, according to Plan given, *Rip Van Winkle*. Have them read, out of class, *The Sketch Book* and *Knickerbocker's History of New York*. A brief sketch of the latter should be written, to be handed to teacher or read in class.

Have class commit to memory Byron's *Apostrophe to the Ocean*, and one or more of Moore's *Hymns*.

Essay.—Subject: *Hawthorne and Irving*. This essay is to be written in Comparison and Contrast.

(FOURTH MONTH.)

Have class study and criticise *Idyls of the King*. Have them read, out of class, *In Memoriam*, and memorize the first stanza and the passage beginning, "Ring out wild bells."

Essay.—Subject: *Longfellow and Tennyson*. This essay is to be written in Comparison and Contrast.

Have class review the work of the term, reciting all selections memorized.

SECOND TERM.—(FIRST MONTH.)

Have the class study and criticise *Marmion* or *The Lady of the Lake*, and memorize the *Parting of Douglas and Marmion*.

Have the class read *Ivanhoe* and write a short sketch of it, to be read in class. Have them learn the names of the rest of the *Waverley Novels*.

Have the class study and criticise Macaulay's *Essay on Milton*, and read, out of class, Chapter III, Vol. 1, of his *History of England*.

Essay.—Subject: *The Uses of History*.

(SECOND MONTH.)

Have the class study Chapter XVII, *Shaw's Manual of English Literature*, and Chapter XV, Porter's *Books and Reading*.

Have class study and criticise *The Vicar of Wakefield*, and read one or more of the following: *Robinson Crusoe*, *Tom Jones*, *Don Quixote*, *Vanity Fair*, and *David Copperfield* or *Oliver Twist*. Have them write a sketch of the one read.

Essay.—Subject: *The Uses of the Novel*.

(THIRD MONTH.)

Have the class read, from *Lives of the Poets*, Johnson's comparison between Dryden and Pope. Have them study and criticise the *Essay on Man*.

Have class study and criticise *The Political Upholsterer*, *The Vision of Mirza*, or *Cato's Soliloquy on the Immortality of the Soul*, and read the other two. Have them memorize the hymn beginning "When all Thy mercies, O, my God."

Review of term's work.

Essay.—Subject: *Oliver Cromwell*.

THIRD TERM.—(FIRST MONTH.)

Have class study and criticise *Samson Agonistes*. Have them read *Paradise Lost*, and memorize the *Invocation to Light*, Book III, and the *Morning Prayer of Adam and Eve*, Book V.

Have class read *Hamlet* and memorize the *Soliloquy on Death*.

Essay.—*The Reign of Elizabeth*.

(SECOND MONTH.)

Have class study and criticise *Julius Caesar*, and commit to memory the orations of Brutus and Antony.

Essay.—*Chaucer and Spenser*.

(THIRD MONTH.)

Teach the origin of the English language and literature. Teach the various theories of the origin, growth and formation of language. (See Shaw's *Manual of English Literature*, Chapter I; Day's *Introduction to English Literature*, Part

1, Chapter I, and Part II, Chapter I; The Introduction to Webster's and Worcester's Unabridged Dictionaries; *Language and the Study of Language*, by Whitney; and Max Muller's *Lectures on Language*, and *Chips from a German Workshop*.

Essay.—The essays of this month will be on various subjects to be selected by pupil or teacher, and will be read, or delivered orally, as Graduation—Parts.



 U M B E R .

FIRST GRADE.

(FOUR MONTHS.)

Each division indicated by Roman numerals represents a week's work. Use objects freely.

I.—Teach pupils to add by 1's from 1 to 9 inclusive; to count by 1's from 1 to 9; to make the figures from 1 to 9 inclusive.

Drill until pupils apply the terms readily and recognize the characters at sight.

II.—Teach the ordinals from 1st to 9th inclusive. Teach pupils to apply the ordinals.

III.—Develop necessity of the signs + and =; teach signs and definitions of terms.

Teach pupils to make the $1+1$ table to $8+1$ inclusive; to subtract by 1's from 9 to 0; to count backward by 1's from 9 to 0.

The teacher should exercise great care as to the form in which pupils put their work on slates and blackboard.

IV.—Develop necessity of the sign - ; teach sign and definition of the term; teach pupils to make the $9-1$ table to $1-1$ inclusive.

Review and examine.

V.—Teach pupils to add by 2's from 2 to 8; to count by 2's from 2 to 8; to make the $2+2$ table; to multiply 2's from 1×2 to 4×2 inclusive; the sign of multiplication; the times table of 2's from 1×2 to 4×2 .

VI.—Teach the following:

Two pints equal one quart; One quart equals two pints;
Two quarts equal four pints; Three quarts equal six pints;
Four quarts equal eight pints.

Add quarts, and change to pints.

Develop idea and teach definition of one-half; teach representation of one-half; teach pupils to change units to halves, using multiples of 2, as far as learned.

VII.—Teach pupils to subtract by 2's from 8 to 0; to count backward by 2's from 8 to 0; to make the $8-2$ table.

VIII.—Teach division (measurement) by 2; as, There are two 2's in 4; three 2's in 6; four 2's in 8; one 2 in 2.

Apply division to measurement; as,

Two pints equal one quart; Four pints equal two quarts;

Six pints equal three quarts; Eight pints equal four quarts.

Review and examine.

IX.—Change halves to units, using multiples of 2, as far as learned. Teach the sign of division; the $2 \div 2$ table.

X.—Teach the fractional idea of division:

$\frac{1}{2}$ of $2=1$; $\frac{1}{2}$ of $4=2$; $\frac{1}{2}$ of 2 qts.=1 qt.; $\frac{1}{2}$ of 4 qts.=2 qts;
 $\frac{1}{2}$ of $6=3$; $\frac{1}{2}$ of $8=4$; $\frac{1}{2}$ of 6 qts.=3 qts.; $\frac{1}{2}$ of 8 qts.=4 qts.

Teach addition by 2's from 1 to 9; counting by 2's from 1 to 9; the $1+2$ table.

XI.—Teach subtraction by 2's from 9 to 1; counting backward by 2's from 9 to 1; the $9-2$ table.

XII.—Review all the work gone over.

Drill in spelling all terms used.

Give additions of 1's and 2's, oral and written. Drill to acquire rapid work.

Teach¹ addition by 3's, beginning with 3; counting by 3's from 3 to 9; the $3+3$ table.

XIII.—Teach multiplication of 3's from 1×3 to 3×3 ; the times table of 3's.

Teach the following:

Three feet equal one yard; One yard equals three feet;
Two yards equal six feet; Three yards equal nine feet.

Develop idea and teach definition of one-third; teach representation of one-third; teach pupils to change units to thirds, using multiples of 3, as far as learned.

Teach subtraction by 3's from 9 to 0; counting backward by 3's from 9 to 0; the $9-3$ table.

XIV.—Teach division (measurement); as, There are two 3's in 6; three 3's in 9; one 3 in 3.

Apply division to measurement; as,
Three feet equal one yard; Six feet equal two yards;
Nine feet equal three yards.

Change thirds to units, using multiples of 3, as far as learned; teach the $3 \div 3$ table.

FRACTIONAL IDEA OF DIVISION.

Drill as follows:

$\frac{1}{3}$ of 3=1;	$\frac{1}{3}$ of 3 ft.=1 ft.;	$\frac{1}{3}$ of 3 yds.=1 yd.;
$\frac{1}{3}$ of 6=2;	$\frac{1}{3}$ of 6 ft.=2 ft.;	$\frac{1}{3}$ of 6 yds.=2 yds.;
$\frac{1}{3}$ of 9=3;	$\frac{1}{3}$ of 9 ft.=3 ft.;	$\frac{1}{3}$ of 9 yds.=3 yds.

Teach addition by 3's from 1 to 7; counting by 3's from 1 to 7; the $1+3$ table.

XV.—Teach subtraction by 3's from 7 to 1; counting backward by 3's from 7 to 1; the $7-3$ table; addition by 3's from 2 to 8; counting by 3's from 2 to 8; the $2+3$ table; subtraction by 3's from 8 to 2; counting backward by 3's from 8 to 2; the $8-3$ table; addition by 4's from 4 to 8; counting by 4's from 4 to 8; the $4+4$ table; multiplication of 4's from 1×4 to 2×4 ; the times table of 4's.

Teach the following:

$$4 \text{ qts.} = 1 \text{ gal.};$$

$$1 \text{ gal.} = 4 \text{ qts.};$$

$$2 \text{ gal.} = 8 \text{ qts.};$$

$$4 \text{ pks.} = 1 \text{ bu.};$$

$$1 \text{ bu.} = 4 \text{ pks.};$$

$$2 \text{ bu.} = 8 \text{ pks.}$$

Develop idea and teach definition of one-fourth; teach representation of one-fourth; change units to fourths, using multiples of 4, as far as learned.

XVI.—Teach subtraction by 4's from 8 to 0; counting backward by 4's from 8 to 0; the $8-4$ table; division by 4 from $4 \div 4$ to $8 \div 4$; the $4 \div 4$ table.

Teach the following:

$$4 \text{ qts.} = 1 \text{ gal.};$$

$$8 \text{ qts.} = 2 \text{ gal.};$$

$$4 \text{ pks.} = 1 \text{ bu.};$$

$$8 \text{ pks.} = 2 \text{ bu.}$$

Change fourths to units, using multiples of 4, as far as learned.

FRACTIONAL IDEA OF DIVISION.

Drill as follows:

$$\frac{1}{4} \text{ of } 4 = 1;$$

$$\frac{1}{4} \text{ of } 8 = 2;$$

$$\frac{1}{4} \text{ of } 4 \text{ bu.} = 1 \text{ bu.};$$

$$\frac{1}{4} \text{ of } 8 \text{ bu.} = 2 \text{ bu.}$$

Teach addition by 4's from 1 to 9; counting by 4's from 1 to 9; the $1+4$ table; subtraction by 4's from 9 to 1; counting backward by 4's from 9 to 1; the $9-4$ table.

(THREE MONTHS.)

I.—Review First Term's work.

II, III.—Develop decimal notation to two places.

Teach addition by 1's from 9 to 50; counting by 1's from 9 to 50; writing and reading numbers to 50.

IV.—Develop and teach ordinals from 9th to 50th.

Review and examine.

V.—Teach subtraction by 1's from 50 to 9; counting backward by 1's from 50; the $50-1$ table.

VI.—Teach addition by 2's from 8 to 50; counting by 2's from 8 to 50; the $8+2$ table to 50.

VII.—Teach multiplication of 2's to 12×2 ; the times table of 2's from 1×2 to 12×2 .

Apply multiplication as before to denominate numbers and fractions, using multipliers from 1 to 12 inclusive.

VIII.—Teach subtraction by 2's from 50 to 0; counting backward by 2's from 50 to 0; the 50-2 table.

Review and examine.

The teacher should exercise great care as to the form in which pupils put their work upon slates and black board.

IX.—Teach division by 2 from $2 \div 2$ to $24 \div 2$; the division table.

FRACTIONAL IDEA OF DIVISION.

Drill as follows:

$\frac{1}{2}$ of $2=1$;	$\frac{1}{2}$ of $8=4$;	$\frac{1}{2}$ of $14=7$;	$\frac{1}{2}$ of $20=10$;
$\frac{1}{2}$ of $4=2$;	$\frac{1}{2}$ of $10=5$;	$\frac{1}{2}$ of $16=8$;	$\frac{1}{2}$ of $22=11$;
$\frac{1}{2}$ of $6=3$;	$\frac{1}{2}$ of $12=6$;	$\frac{1}{2}$ of $18=9$;	$\frac{1}{2}$ of $24=12$.

X.—Apply division as before to denominate numbers and fractions.

XI.—Give alternating tables; as,

$2 + 2 = 4$;	$2 - 2 = 0$;
$2 \times 2 = 4$;	$2 \div 2 = 1$;
$4 + 2 = 6$;	$4 - 2 = 2$;
$3 \times 2 = 6$;	$4 \div 2 = 2$.

XII.—Review the Term's work. Examine.

(THREE MONTHS.)

I.—Teach addition by 2's from 9 to 49; counting by 2's from 9 to 49; the 9+2 table to 49.

II.—Teach subtraction by 2's from 49 to 9; counting backward by 2's from 49 to 9; the 49-2 table.

III.—Teach addition by 3's from 9 to 48; counting by 3's from 9 to 48; the 9+3 table to 48.

IV.—Teach multiplication of 3's from 1×3 to 12×3 ; the times table of 3's.

Apply multiplication to denominate and fractional work as before.

Review and examine.

V.—Teach subtraction by 3's from 48 to 9; counting backward by 3's from 48 to 9; the 48-3 table.

VI.—Teach division by 3 from $3 \div 3$ to $36 \div 3$; the $3 \div 3$ table.

Apply division as before to denominate numbers and fractions.

FRACTIONAL IDEA OF DIVISION.

$\frac{1}{3}$ of 3 = ? $\frac{1}{3}$ of 6 = ? $\frac{1}{3}$ of 9 = ? $\frac{1}{3}$ of 12 = ? etc.

Teach addition by 3's from 10 to 49; counting by 3's from 10 to 49; the 10+3 table to 49; subtraction by 3's from 49 to 10; counting backward by 3's from 49 to 10; the 49-3 table.

VII.—Teach addition by 3's from 8 to 50; counting by 3's from 8 to 50; the 8+3 table; subtraction by 3's from 50 to 8; counting backward by 3's from 50 to 8; the 50-3 table.

Give combinations of 1's, 2's and 3's oral and written. Drill to secure rapid work.

Give blackboard and slate work like the following:

Qt. Pt.	Pt. Qt. Pt.	Yd. Ft.	Ft. Yd. Ft.
4=8;	5=2 1;	2=6;	4=1 1;
7=14;	11=5 1;	5=15;	9=3.

VIII.—Teach addition by 4's from 4 to 48; counting by 4's from 4 to 48; the 4+4 table; multiplication of 4's from 1×4 to 12×4 ; the times table of 4's.

Apply multiplication as before to denominate and fractional work.

Review and examine.

XI.—Teach subtraction by 4's from 48 to 0; counting backward by 4's from 48 to 0; the 48-4 table; division by 4's from $4 \div 4$ to $48 \div 4$; the division table of 4's.

FRACTIONAL IDEA OF DIVISION.

$\frac{1}{4}$ of 4 = ? $\frac{1}{4}$ of 16 = ? $\frac{1}{4}$ of 28 = ? $\frac{1}{4}$ of 40 = ? etc.

Apply division as before to denominate numbers and fractions.

X.—Teach addition by 4's from 1 to 49; counting by 4's from 1 to 49; the 1 + 4 table; subtraction by 4's from 49 to 1; counting backward by 4's from 49 to 1; the 49 - 4 table; addition by 4's from 2 to 50; counting by 4's from 2 to 50; the 2 + 4 table; subtraction by 4's from 50 to 2; counting backward by 4's from 50 to 2; the 50 - 4 table.

XI.—Teach addition by 4's from 3 to 51; counting by 4's from 3 to 51; the 3 + 4 table; subtraction by 4's from 51 to 3; counting backward by 4's from 51 to 3; the 51 - 4 table.

Give blackboard and slate work like the following:

Gal. Qt.	Qt. Gal. Qt.	Bu. Pk.	Pk. Bu. Pk.
3=12;	4=1;	2=8;	5=1 1;
6=24;	9=2 1;	11=44;	25=6 1.

$$24 + 4 = ? \quad 3 \times ? = 12;$$

$$18 \div ? = 6 \quad 18 - ? = 14.$$

XII.—Review and examine.

SECOND GRADE.

(FOUR MONTHS.)

I.—Give constant reviews of denominate and fractional work comprising applications of 1's, 2's, 3's and 4's.

II.—Develop decimal notation to three places.

Teach writing and reading numbers to 999; addition by 1's from 50 to 100; counting by 1's from 50 to 100.

III.—Teach addition by 2's from 50 to 100; counting by 2's from 50 to 100; the 50 + 2 table; subtraction by 2's from 100 to 50; counting backward by 2's from 100 to 50; the 100 - 2 table.

Review the multiplication and division tables of 3's.

IV.—Teach addition by 2's from 49 to 101; counting by 2's from 49 to 101; the 49 + 2 table; subtraction by 2's from

101 to 49; counting backward by 2's from 101 to 49; the 101 - 2 table.

V.—Teach addition by 3's from 48 to 102; counting by 3's from 48 to 102; the $48 + 3$ table.

Review multiplication and division tables of 3's.

VI.—Teach subtraction by 3's from 102 to 48; counting backward by 3's from 102 to 48; the 102 - 3 table.

Give rapid combinations of numbers oral and written from 1 to 3 inclusive.

VII.—Teach addition by 3's from 49 to 100; counting by 3's from 49 to 100; the $49 + 3$ table; subtraction by 3's from 100 to 49; counting backward by 3's from 100 to 49; the 100 - 3 table.

VIII.—Teach addition by 3's from 50 to 101; counting by 3's from 50 to 101; the $50 + 3$ table; subtraction by 3's from 101 to 50; counting backward by 3's from 101 to 50; the 101 - 3 table.

Review and examine.

IX.—Teach addition by 4's from 48 to 100; counting by 4's from 48 to 100; the $48 + 4$ table; subtraction by 4's from 100 to 48; counting backward by 4's from 100 to 48; the 100 - 4 table.

Review multiplication and division tables of 4's.

X.—Teach addition by 4's from 49 to 101; counting by 4's from 49 to 101; the $49 + 4$ table; subtraction by 4's from 101 to 49; counting backward by 4's from 101 to 49; the 101 - 4 table; addition by 4's from 50 to 102; counting by 4's from 50 to 102; the $50 + 4$ table.

XI.—Teach subtraction by 4's from 102 to 50; counting backward by 4's from 102 to 50; the 102 - 4 table; addition by 4's from 51 to 103; counting by 4's from 51 to 103; the $51 + 4$ table; subtraction by 4's from 103 to 51; counting backward by 4's from 103 to 51; the 103 - 4 table.

XII.—Give rapid promiscuous additions, subtractions, multiplications and divisions of 1's 2's 3's and 4's oral and written.

Add single columns of quarts and change to pints; pints and change to quarts; yards and change to feet; feet and change to yards etc.

Review and examine.

XIII.—Teach addition by 5's from 5 to 100; counting by 5's from 5 to 100; the $5+5$ table; multiplication of 5's from 1×5 to 12×5 inclusive; the times table of 5's.

XIV.—Develop idea and teach definition of one-fifth; teach representation of one-fifth.

Change units to fifths using multiples of 5, as far as learned. Teach subtraction by 5's from 100 to 0; counting backward by 5's from 100 to 5; the $100-5$ table.

XV.—Teach division by 5 to $60 \div 5$; the $5 \div 5$ table.

FRACTIONAL IDEA OF DIVISION.

Take fifths of multiples of 5, as far as learned.

Change fifths to units, using multiples of 5, as far as learned. Follow the same general plan for the remaining tables of 5's as given in the preceding tables.

Teach the $1+5$ table to 101; the $101-5$ table.

XVI.—Teach the $2+5$ table; the $102-5$ table; the $3+5$ table; the $103-5$ table; the $4+5$ table; the $104-5$ table. Give rapid combinations of numbers from 1 to 5 inclusive. Review and examine.

(THREE MONTHS.)

I.—Teach addition by 6's from 6 to 102; counting by 6's from 6 to 102; the $6+6$ table to 102; multiplication by 6's from 1×6 to 12×6 .

Develop idea and teach definition of one-sixth; representation of one-sixth.

Change units, halves and thirds to sixths, using multiples of 6, as far as learned.

II.—Teach subtraction by 6's from 102 to 0; counting backward by 6's from 102 to 0; the $102-6$ table; division by 6 from $6 \div 6$ to $72 \div 6$; the $6 \div 6$ table.

FRACTIONAL IDEA OF DIVISION.

Take sixths of multiples of 6, as far as learned.

Change sixths to units, halves and thirds, using multiples of 6 as far as learned.

Follow the same general plan for the remaining tables of 6's as given in the preceding tables.

Teach the $1+6$ table; the $103-6$ table; the $2+6$ table.

III.—Teach the $104-6$ table; the $3+6$ table; the $105-6$ table; the $4+6$ table, the $106+6$ table; the $5+6$ table.

IV.—Teach the $107-6$ table.

Teach pupils to analyze mental examples in addition, subtraction and multiplication.

Give rapid combination of numbers from 1 to 6 inclusive.

V.—Teach addition of denominate numbers involving a change of denominations. Give problems.

VI.—Teach addition of abstract numbers involving a change of denominations.

VII.—Teach multiplication of denominate numbers involving a change of denominations.

VIII.—Teach multiplication of abstract numbers involving a change of denominations.

Review and examine.

IX.—Teach addition by 7's from 7 to 105; counting by 7's from 7 to 105; the $7+7$ table; multiplication of 7's from 1×7 to 12×7 ; the times table of 7's.

Develop idea and teach definition of one-seventh; representation of one-seventh.

Change units to sevenths.

Teach subtraction by 7's from 105 to 0; counting backward by 7's from 105 to 0; the $105-7$ table.

X.—Teach division by 7 from $7 \div 7$ to $84 \div 7$; the $7 \div 7$ table.

Change sevenths to units.

FRACTIONAL IDEA OF DIVISION.

Take sevenths of multiples of 7, as far as learned.

Follow the same general plan for the remaining tables of 7's as given in the preceding tables.

Teach the $1 + 7$ table; the $106 - 7$ table.

XI.—Teach the $2 + 7$ table; the $107 - 7$ table; the $3 + 7$ table; the $108 - 7$ table; the $4 + 7$ table.

XII.—Teach the $109 - 7$ table; the $5 + 7$ table; the $103 - 7$ table; the $6 + 7$ table; the $104 - 7$ table.

Give rapid combinations of numbers from 1 to 7 inclusive.
Review and examine.

(THREE MONTHS.)

I.—Teach addition by 8's from 8 to 104 ; counting by 8's from 8 to 104 ; the $8 + 8$ table; multiplication of 8's from 1×8 to 12×8 ; the table from 1×8 to 12×8 ; the number of quarts in a peck; reduction of pecks to quarts.

Develop idea and teach definition of one-eighth; teach representation of one-eighth.

Change units, halves and fourths to eighths.

II.—Teach subtraction by 8's from 104 to 0; counting backward by 8's from 104 to 0; the $104 - 8$ table; division by 8's from $8 \div 8$ to $96 \div 8$; the $8 \div 8$ table.

Change quarts to pecks; as,

8 qts. = 1 pk.;

15 qts. = 1 pk. 7 qts.

FRACTIONAL IDEA OF DIVISION.

Take eighths of multiples of 8, as far as learned.

Change eighths to units, halves, and fourths.

III.—Follow the same general plan for the remaining tables of 8's as given in the preceding tables.

Teach the $1 + 8$ table; the $105 - 8$ table; the $2 + 8$ table; the $106 - 8$ table.

IV.—Teach the $3 + 8$ table; the $107 - 8$ table; the $4 + 8$ table; the $108 - 8$ table; the $5 + 8$ table.

V.—Teach the $101 - 8$ table; the $6 + 8$ table; the $102 - 8$ table; the $7 + 8$ table; the $103 - 8$ table.

VI.—Give rapid combinations of numbers from 1 to 8 inclusive.

Give problems involving preceding combinations.

Continue the work in addition and multiplication of abstract and denominate numbers.

Teach addition by 9's from 9 to 108; counting by 9's from 9 to 108; the $9 + 9$ table; multiplication of 9's from 1×9 to 12×9 ; the table from 1×9 to 12×9 .

Develop idea and teach definition of one-ninth; teach representation of one-ninth.

Change units and thirds to ninths.

Teach subtraction by 9's from 108 to 0; counting backward by 9's from 108 to 0; the $108 - 9$ table; division by 9's from $9 \div 9$ to $108 \div 9$; the $9 \div 9$ table to $108 \div 9$.

FRACTIONAL IDEA OF DIVISION.

Take ninths of multiples of 9, as far as learned.

Change ninths to units and thirds.

VII.—Follow the same general plan for the remaining tables of 9's as given in the preceding tables.

Teach the $1 + 9$ table; the $109 - 9$ table; the $2 + 9$ table; the $110 - 9$ table the $3 + 9$ table; the $102 - 9$ table.

VIII.—Teach the $4 + 9$ table; the $103 - 9$ table; the $5 + 9$ table; the $104 - 9$ table; the $6 + 9$ table.

IX.—Teach the $105 - 9$ table; the $7 + 9$ table; the $106 - 9$ table; the $8 + 9$ table; the $107 - 9$ table.

Give rapid combinations of numbers from 1 to 9 inclusive.

X.—Teach subtraction of denominate numbers involving a change of denominations. Give problems.

Teach subtraction of abstract numbers involving a change of denominations.

XI.—Teach division of denominate numbers involving a change of denominations.

Teach division of abstract numbers involving a change of denominations.

XII.—Continue the work given in 10th and 11th weeks. Review and examine.

THIRD GRADE.

(FOUR MONTHS.)

I.—Review addition, subtraction, multiplication and division involving changes of denominations.

II.—Teach addition by 10's from 10 to 100; counting by 10's from 10 to 100; the $10+10$ table; multiplication of 10's from 1×10 to 12×10 ; the table from 1×10 to 12×10 .

Teach the number of cents in a dollar; the value of $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{8}$, $\frac{1}{8}$, $\frac{3}{8}$, $\frac{5}{8}$, and $\frac{7}{8}$ of a dollar.

Teach definition of one-tenth; the value of one-tenth of a dollar; the signs for dollars (\$) and cents (c. or cts.)

Change units, halves, and fifths to tenths.

III.—Teach representation of one-tenth decimally. Practice reducing halves, fifths and tenths to decimal form.

Teach pupils to write dollars and fractional parts of a dollar decimally.

Drill until pupils can write and read dollars and cents rapidly; as, $\$3\frac{1}{2} = \$3.50$, $\$25\frac{3}{4} = \$25.75$.

IV.—Teach subtraction by 10's from 100 to 0; counting backward by 10's from 100 to 0; the $100-10$ table; division by 10 from $10 \div 10$ to $120 \div 10$; the division table from $10 \div 10$ to $100 \div 10$.

FRACTIONAL IDEA OF DIVISION.

Take tenths of multiples of 10, as far as learned.

Change tenths to units, halves, and fifths.

Follow the same general plan for the remaining tables of 10's as given in the preceding tables.

Teach the $1+10$ table; the $101-10$ table; the $2+10$ table; the $102-10$ table; the $3+10$ table; the $103-10$ table; the $4+10$ table; the $104-10$ table; the $5+10$ table; the $105-10$ table; the $6+10$ table; the $106-10$ table; the $7+10$ table;

the 107-10 table; the 8+10 table; the 108-10 table; the 9+10 table; the 109-10.

Review and examine.

V.—Teach addition by 11's from 11 to 132; counting by 11's from 11 to 132; the 11+11 table; multiplication of 11's from 1×11 to 12×11 ; the times table from 1×11 to 12×11 .

Develop idea and teach definition of one-eleventh; teach representation of one-eleventh; change units to elevenths.

Teach subtraction by 11's from 132 to 0; counting backward by 11's from 132; the 132-11 table; division by 11 from $11 \div 11$ to $132 \div 11$; the $11 \div 11$ table.

Apply fractional idea of division.

Change elevenths to units.

VI.—Follow the same general plan for the remaining tables of 11's as given in the preceding tables.

Teach the 1+11 table; the 133-11 table; the 2+11 table; the 134-11 table, etc.

VII.—Give rapid combinations of numbers from 1 to 11 inclusive.

Teach addition by 12's from 12 to 144; counting by 12's from 12 to 144; the 12+12 table; multiplication of 12's from 1×12 to 12×12 ; the times table of 12's; the number of inches in 1 foot; reduction of feet to inches.

Develop idea and teach representation of one-twelfth.

Change units, halves, thirds, fourths and sixths to twelfths.

Teach subtraction by 12's from 144; counting backward by 12's from 144; the 144-12 table.

VIII.—Teach division by 12 from $12 \div 12$ to $144 \div 12$; the $12 \div 12$ table.

Apply fractional idea of division.

Change inches to feet; twelfths to units, halves, thirds, fourths, and sixths.

Give rapid combinations of numbers from 1 to 12 inclusive.

Follow the same general plan for the remaining tables of 12's as given in the preceding tables.

Teach the $1+12$ table; the $145-12$ table; the $2+12$ table; the $146-12$ table, etc.

IX.—Develop decimal notation to six places.

Drill in writing and reading numbers.

Teach definition of notation; definition of numeration; rules for notation and numeration.

X.—Drill in writing and reading numbers.

Teach definition of addition; definition of term *sum*.

XI.—Add denominate numbers involving a change of denominations.

Teach addition of fractions involving a change of denominations

XII.—Add abstract numbers involving a change of denominations. Give problems.

Teach rules for addition.

Review and examine.

XIII.—Teach definition of multiplication.

Teach definition of terms multiplicand, multiplier and product.

Drill in multiplication of denominate numbers. Give problems.

XIV.—Teach multiplication of fractions by whole numbers. Teach reduction of the same to whole or mixed numbers.

Teach rules for multiplication.

XV.—XVI.—Drill in addition and multiplication.

Review and examine.

(THREE MONTHS.)

I.—Drill in addition and multiplication of denominate numbers, abstract numbers and fractions.

II.—Teach definition of subtraction.

Teach definitions of terms minuend, subtrahend and difference, or remainder.

Subtract denominate numbers involving a change of denominations. Give problems.

III.—Drill in subtraction.

Teach subtraction of fractions involving a change of denominations. Give problems.

IV.—Drill in subtraction of fractions.

Review and examine.

V.—Subtract abstract numbers involving a change of denominations. Give problems.

VI. Drill in division of denominate numbers.

Teach definition of division.

Teach definitions of divisor, dividend and quotient.

VII.—Teach division of fractions by whole numbers (dividing the numerator).

Drill in division of abstract numbers involving a change of denominations. Give problems.

VIII.—Teach rules and analyses for division.

Review and examine.

Review fundamental operations in denominate numbers, abstract numbers and fractions.

Drill on definitions, rules and analyses.

Work for accuracy and rapidity..

THREE MONTHS.—(FOUR WEEKS.)

Review addition of denominate numbers, fractions and abstract numbers.

Review definitions of all terms used in addition. Review rule and analysis for addition.

Work for accuracy and rapidity.

Give care to the forms and neatness of written work. Give problems.

Review the work given in multiplication of denominate numbers, abstract numbers and fractions. Have pupils

multiply by numbers from 1 to 12 inclusive.

Review the definitions of terms used in multiplication.

Review rules and analyses.

(FOUR WEEKS.)

Review multiplication.

Review definitions of subtraction and the terms used in subtraction.

Drill in subtraction of denominate numbers, abstract numbers and fractions involving changes of denominations.

Review rules and analyses.

(FOUR WEEKS.)

Review the definitions given in division.

Review division of denominate numbers, abstract numbers and fractions. Have pupils divide by numbers from 1 to 12 inclusive.

Review rules and analyses.

Obtain parts of numbers indicated by fractions; as, What is $\frac{3}{4}$ of 20? $\frac{2}{3}$ of 15? etc.

Review and examine.

FOURTH GRADE.

(FOUR MONTHS.)

Write and read numbers to nine places.

Practice in writing numbers, beginning at the left hand.

Teach multiplication involving partial products, using multipliers consisting of units and tens.

Teach definition of partial product, and review other terms used in multiplication.

Develop rule and analysis.

Review and examine.

Review definition of the terms used in division.

Teach long division using divisors to 99 inclusive. Develop rules and analyses.

Review and examine.

Develop idea of reduction descending, using tables already learned.

Apply multiplication to reduction, using Liquid, Dry and Long measures, as far as learned.

Teach Avoirdupois Weight. $16 \text{ oz.} = 1 \text{ lb.}$ $2,000 \text{ lbs.} = 1 \text{ ton.}$

Give applications of multiplication in reduction descending, using the table just learned.

Teach reduction ascending, using the above named tables.

Review notation and numeration to nine places.

Drill in multiplication and division. Work for accuracy and rapidity.

Review and examine.

Reduce halves, fourths and eighths of pounds to the same denomination. Add and subtract.

Do similar work in Liquid and Dry Measure.

Give practical applications of denominate numbers; as, in buying by the bushel and selling by the quart or pint, buying by the pound or fractions of the pound, and selling by the ounce.

Review and examine.

(THREE MONTHS.)

Complete tables of Long Measure and Liquid Measure.

$5\frac{1}{2} \text{ yd.} = 1 \text{ rd.};$ $320 \text{ rd.} = 1 \text{ m.};$ $31\frac{1}{2} \text{ gal.} = 1 \text{ bbl.}$

Teach the table of Apothecaries' Weight.

Apply reduction ascending and descending to Apothecaries' Weight.

Reduce, add, and subtract fractional parts of the denominations of Liquid Measure and Apothecaries' Weight.

Give business applications of the tables; as, building rods of fence or sidewalk at a certain price per foot, making miles of road at a certain price per rod, buying medicine by the quantity and selling by the ounce or dram.

Teach the Time Table.

Give addition, subtraction, multiplication and division of denominate numbers, using the Time Table.

Reduce, add, and subtract fractional parts of the denominations of the Time Table.

Teach the Number Table.

Drill in addition, subtraction, multiplication, and division of denominate numbers, using the Time Table and Number Table.

Review and examine.

Apply reduction ascending and descending to the Number Table. Reduce, add, and subtract fractional parts of the denominations of this Table.

Give business applications; as, in buying pens by the gross and selling them, 3 for 5 cents.

Teach Paper Table.

Drill in addition, subtraction, multiplication, and division of the same. Apply reduction ascending and descending to the Paper Table.

Reduce, add, and subtract fractional parts of the denominations of this Table.

Give business applications; as, in buying paper by the ream and selling it by the sheet.

Review and examine.

(THREE MONTHS.)

Factor numbers to 50 inclusive.

Give all possible divisors of numbers to 50 inclusive.

Give all numbers below one hundred that will contain each number from 1 to 12 inclusive.

Be careful about the representation of factors.

Review and examine.

Write and read decimals to five places.

Write and read mixed numbers.

Change $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{3}{8}$, $\frac{5}{8}$, $\frac{7}{8}$ to decimals.

Teach addition of decimals.

Apply the same to rods, pounds, bushels.

Teach multiplication of decimals and mixed numbers by whole numbers to 12 inclusive.

Apply the same to denominate numbers.

Review and examine.

Teach subtraction of decimals in all their variations.

Apply the same to denominate numbers.

Teach pupils to divide decimals and mixed numbers by numbers not exceeding twelve.

Apply the same to denominate numbers.

Review and examine.

FIFTH GRADE.

(FOUR MONTHS.)

Factor numbers to 150 inclusive.

Name divisors, greatest divisors, common even-dividends of two or more numbers; smallest common even-dividends of two or more numbers.

Develop rules and analyses.

Take fractional parts of numbers as above.

Review and examine.

Teach table of Troy Weight.

Give addition, subtraction, multiplication, and division of numbers applied to Troy Weight.

Drill in reduction ascending and descending, using denominations of Troy Weight. Reduce, add and subtract fractional parts of the same.

Give business applications; as, finding the value of an article weighing 5 oz. 2 pwts., at a certain price per penny-weight.

Review and examine.

Give drill in rapid addition, subtraction, multiplication, and division of abstract numbers.

Use multipliers and divisors of two figures.

Review and classify tables.

Do rapid work in addition, subtraction, multiplication, and division of denominate numbers. Have rapid work done in business applications.

Review and examine.

(THREE MONTHS.)

Teach multiplication of a fraction by a whole number, by the two methods.

Teach division of a fraction by a whole number, by the two methods.

Give many concrete examples for practice. Develop rules and analyses.

Teach the two ideas of a fraction. Teach that the carrying out of the second idea is changing a common fraction to a decimal.

Review and examine.

Teach that multiplying or dividing both numerator and denominator by the same number does not change the value of the fraction, giving the two reasons—(1) Because it is an expression of division. (2) Because of its purely fractional character. Drill in multiplication and division of abstract numbers, using numbers of three or more figures for multipliers and divisors.

Teach the short method of multiplying and dividing by 10, 100, and 1,000.

Review and examine.

(THREE MONTHS.)

Drill for rapid work in writing mixed numbers and decimals.

Drill in multiplication and division by 10, 100, 1,000, according to short method.

Give practice in addition, subtraction, multiplication and division of decimals.

Use whole numbers for multipliers and divisors.

Review tables of denominate numbers with classification and applications.

Review entire work. Outline work.

General examination.

SIXTH GRADE.

(FOUR MONTHS.)

Review multiplication of a fraction by a whole number.
(Both methods.)

Teach multiplication of a whole number by a fraction;
multiplication of a fraction by a fraction.

Give rules, analyses and applications.

Review and examine.

Review division of a fraction by a whole number. (Both
methods.)

Teach division of a whole number by a fraction; division
of a fraction by a fraction.

Give rules, analyses and applications of the same.

Review and examine.

Review fractions and teach terms.

Define kinds of fractions.

Review the subject and make outlines.

Review multiplication of decimals involving all changes
in multiplicand and multiplier; division of decimals involv-
ing all changes in divisor and dividend. Develop definitions,
statements, analyses and rules.

Review and examine.

(THREE MONTHS.)

Teach table of Square Measure.

Apply reduction ascending and descending to the same.

Drill in addition, subtraction, multiplication and division
of numbers applied to the same.

Reduce, add, and subtract fractional parts of the above
named denominations.

Give business applications of Square Measure—measuring
lumber, building side-walks, fencing, roofing and siding.

Review and examine.

Give business applications of Square Measure—lathing, plastering, papering, flooring, carpeting, land platting with township, section, number and part of section.

Review and examine.

(THREE MONTHS.)

Teach the table of Cubic Measure. Apply reduction ascending and descending to the same.

Reduce, add, and subtract fractional parts of the above named denominations.

Give business applications of Cubic Measure, measuring wood, stone, walls, and excavations; finding contents of bins, cornercribs, gallons, bushels. Give definition of a circle.

Teach method of finding the area of a circle.

Teach method of finding the contents of cylinders, wells, cisterns and barrels.

Review and examine.

Teach the table of Longitude and Time.

Apply reduction ascending and descending to the same.

Drill in addition, subtraction, multiplication, and division, using the denominations of this table.

Reduce, add, and subtract fractional parts of these denominations.

Give practical applications.

Review and examine.

Drill in finding time equivalent for distance, and distance equivalent for time.

SEVENTH GRADE.

(FOUR MONTHS.)

Review abstract numbers including decimals.

Drill for accurate results and quick work.

Review fractions and denominate numbers.

Make outline of fractions and denominate numbers.

Drill for accuracy and rapidity.

Give cross-section work.

Drill in addition and subtraction of integral and fractional numbers, both abstract and denominate.

Give definitions, rules, analyses, statements and applications.

Drill in multiplication and division as above detailed.

(THREE MONTHS.)

1. Drill in getting hundredths of numbers.

Give term *per cent.* and tell what it means.

Give much drill in finding hundredths of numbers, using the terms per cent. and hundredths interchangeably.

Develop definition of percentage and give sign.

Show relation of 50% to $\frac{1}{2}$ of a number; 25% to $\frac{1}{4}$; 100% to the whole; 75% to $\frac{3}{4}$.

Give much drill in finding parts of numbers as above indicated, using the fractions and corresponding per cent. interchangeably. Show difference between $\frac{1}{2}\%$ and $\frac{1}{2}$ of a number; $\frac{1}{3}\%$ and $\frac{1}{3}$ of a number. Drill in finding $\frac{1}{2}\%$, 50%, and $\frac{1}{2}$ of numbers; $\frac{1}{3}\%$, $33\frac{1}{3}\%$, and $\frac{1}{3}$ of numbers; $\frac{2}{3}\%$, $66\frac{2}{3}\%$, and $\frac{2}{3}$ of numbers, using fractions and per cent. interchangeably.

Show the relation of 200% to two times a number; 300% to three times a number, etc.

Give much drill in all of the above indicated work.

Find 1% from a given per cent.

Find any required per cent. from a given per cent.

Find what per cent. one number is of another.

Develop terms and definitions of the same.

Develop the number of different cases that may occur.

Develop rule for finding each term.

Develop the following Statements:

(a.) The base is the difference between the amount and the percentage.

(b.) The base is the quotient of the percentage by the percentage on one.

(c.) The base is the quotient of the amount by the amount of one.

(*d.*) The rate is the quotient of the percentage by one per cent. of the base.

(*f.*) The percentage is the product of one per cent. of the base by the number of units in the rate, etc.

Practice upon business applications until the subject thus far outlined is thoroughly understood.

2. Apply previous knowledge to operations in buying articles and selling them at a profit or loss.

Trace correspondences in terms used and give definitions appropriate to Profit and Loss. Develop rule.

Develop statements to apply.

Give practice in business applications.

(THREE MONTHS.)

3. Apply previous knowledge to Commission.

Change names of terms.

Develop rules and statements.

Make a table showing correspondences of the terms of percentage and its applications.

4. Teach by what means schools are supported, city and state governments sustained, bridges built, etc.

Teach how and by whom taxes are levied; how and by whom an estimate (assessment) of property is made; how and by whom each man's tax is determined; how and by whom the tax is collected.

Teach by what authority the different persons act. (election or appointment.)

Teach what is the penalty for not paying taxes.

Apply previous knowledge of percentage to taxes.

Change names of terms and tabulate, showing correspondences.

Develop rules and statements.

Give practice in business applications.

Teach what is meant by poll tax.

5. Teach how the expenses of the national government are borne.

Teach what is meant by imports and exports; by duties; *ad valorem* and *specific* duties.

Teach how officers are appointed, and what is meant by smuggling.

Teach what is meant by internal revenue; how and by whom assessed and collected.

Teach by whom these officers are appointed.

Apply previous knowledge of percentage to the terms of Custom House Business.

Change names; trace and tabulate correspondences; develop rules and statements and give practice in business applications.

EIGHTH GRADE.

(FOUR MONTHS.)

6. Teach how to find what must be paid for the use of money at various rates per cent. Call this Interest.

Apply previous knowledge to Interest and change names of terms.

Teach how to find what must be paid for the use of money at a certain per cent. per annum. Give term Time.

Develop definitions for terms; trace and tabulate correspondences; develop rules and statements; give business applications.

Teach how to find interest for months and days.

Teach how to find time between different dates.

Give practice in business applications.

Teach the relation of 6 to the number of months in a year, and the number of days in a month.

Teach how to find interest by the 6% rule.

Teach how to find interest by taking "aliquot parts."

Have pupils draw promissory notes and cast the interest upon them.

Teach how to find the interest when partial payments have been made.

Develop rules.

Teach pupils various forms of promissory notes and receipts.

Teach what is meant by compound interest.

Give practice in business applications.

(THREE MONTHS.)

7. Show how to get the present value of money due in future time.

Apply previous knowledge to Discount; change names of terms; trace and tabulate correspondences; develop rules and statements, and give practice in business applications.

Show how notes are discounted at a bank.

Teach differences in fact between True and Bank Discount. Develop rule for finding Bank Discount and give business applications.

8. Teach how to find the cost of insuring property from loss.

Apply previous knowledge to Insurance; change names of terms; trace and tabulate correspondences of terms; develop rules and statements; and give practice in business applications.

9. Teach what stocks and bonds are.

Teach meaning of different kinds of Government bonds; as, *five-twenties*, *ten-forties*, etc.

Drill pupils in finding the comparative profit of investments in bonds at premium and at discount; as, for example, Which is the better investment, 9% bonds at 12% premium or 7% bonds at 9% discount?

(THREE MONTHS.)

10. Teach definitions of Bankruptcy, Assets, Liabilities, insolvent.

Give many examples involving business applications of the foregoing terms.

Teach definitions of Draft, Drawer, Drawee, Payee, Remitter, and teach what is meant by accepting a draft.

Give practice in making and accepting drafts.

Involve numbers and teach what is meant by Power, Index, Square, and Cube.

Let pupils learn the squares of numbers from 1 to 25 inclusive.

Drill in (mentally) squaring numbers above 25 by adding to the square of the tens, twice the product of the tens by the units and the square of the units. While doing this, lead pupils to see and state within what bounds the squares of the tens and units are found respectively.

Teach how to find one of the two equal factors of a number.

Apply square root to finding the sides of triangles.

Give business applications of square root.

Make notes, receipts, orders, due bills, and bills of exchange.

Make applications of each of the above to practical business transactions in the purchase or sale of goods, hay, wheat, pork, lumber, land, wood, etc.

NINTH GRADE.

(FOUR MONTHS.)

Elementary Algebra to Division inclusive.

(THREE MONTHS.)

The same to Equations of the First Degree.

(THREE MONTHS.)

Review Addition, Subtraction. Multiplication and Division of abstract and denominate numbers both integral and fractional. Have pupils state likenesses and differences between corresponding processes, and make full LOGICAL OUTLINES of the various subjects.

Give practical applications, and work for accurate results quickly obtained.

Give much attention to rapid additions of numbers in long columns, single and double; short processes of multiplication and division; rapid mental combinations.

Review Percentage and its applications; trace likenesses and differences; make LOGICAL OUTLINES of the various subjects; give practical business applications; do accurate, rapid work.



GEOGRAPHY.

This work is to be begun the last term of the Third Year.

FIRST SERIES.

PLACE.

(FOUR WEEKS.)

- I. Position.
(Review the *place work* given in I, of FORM.)
- II. Representation.
 - 1. Plane Surfaces (table, floor, blackboard).
 - 2. Objects on plane surfaces.
- III. Direction.
 - 1. Cardinal Points.
 - 2. Semi-cardinal Points.

JOURNEYS.

I. A Journey to Montgomery.

(FOUR WEEKS.)

Starting from the school house, cross the river, go down the west side to destination, and return on the east side.

All objects of interest should be noticed, and their names given and defined.

The following points should be made:

1. Schoolhouse. 2. Church. 3. Street. 4. Park.
5. Residence. 6. Garden. 7. Store. 8. Block.
9. Post-office. 10. Island. 11. City Hall. 12. Bridge.
13. River—(a) banks, (b) current, (c) course, (d) bed, (e) dam, (f) mills, (g) factories, (h) scavenger.
14. Railroad. 15. Road. 16. Farms. 17. Fields.
18. Products. 19. Meadow. 20. Pasture. 21. Stock.
22. Montgomery—(a) village, (b) mills, (c) cheese factory.
(CROSS RIVER.)
23. Woods. 24. Cemetery. 25. Seminary.
26. Stone-quarry. 27. Idea of distance.
28. Distance from Aurora to Montgomery.

FOURTH GRADE.

(FOUR MONTHS.)

II. A Journey to Geneva.

(THREE WEEKS.)

Go from Broadway to Schneider's Mill on the east side of the river and finish the journey on the west side.

Notice all points of interest and define terms.

The following points should be made:

1. The direction of Geneva from Aurora. 2. Up river.
3. Down river. 4. Ravine. 5. Island. 6. Railroad.
7. Brook. 8. Creek. 9. Spring. 10. Tributary.

11. North Aurora—(*a*) railroad station, (*b*) sash factory, (*c*) foundry, (*d*) cheese factory, (*e*) bridge, (*f*) dam, (*g*) mill, (*h*) boats.
12. Woods. 13. Prairie. 14. Hill. 15. Valley.
16. Farms. 17. Farmers. 18. Crops. 19. Products.
20. Batavia—(*a*) stone-quarry, (*b*) greenhouse, (*c*) asylum.
21. Geneva—(*a*) jail, (*b*) court-house.
22. Compare with Aurora—term city. 23. Distance.
24. Compare distance from Aurora to Montgomery with distance from Aurora to Batavia, and from Aurora to Geneva.

III. A Journey to Chicago by rail.

(TWO WEEKS.)

Make the following points:

1. Depot—passenger and freight. 2. Railroad—trains, cars.
3. Car-shops. 4. Farms—crops, principal products.
5. Prairie. 6. Telegraph—use. 7.—Villages and stations.
8. Chicago. 9. Depots, 10. Idea of its size.
11. Noise. 12. Lake Michigan—(*a*) uses of the lake, (1) water supply (2) way of travel—commerce, (*b*) wharf, (*c*) harbor. 13. Large and handsome stores, churches, schools, public buildings.
14. Street cars and omnibuses. 15. River—(*a*) tunnels, (*b*) drawbridge. 16. Compare with Fox River; (*a*) navigable and unnavigable, (*b*) steamboats, (*c*) tugs, (*d*) sail vessels.
17. Long streets. 18. Warehouses and elevators—use.
19. Stock yards. 20. Compare with Aurora;—large and small cities.
21. Compare with other places visited—term town.
22. Compare distance from Aurora to Chicago with distance from Aurora to Geneva.

MAPS.

[TWO WEEKS.]

I. Draw map of schoolroom.

DIRECTIONS FOR DRAWING.

1. Draw from left to right two horizontal lines five inches long and four inches apart. Call the nearer line *a*, and the other *b*. Connect these lines at their extremities forming an oblong. Call the connecting line on the right *c*, and that on the left *d*.
2. In *d* one inch and one eighth from *a* and *b* respectively make points.
3. One inch to the right of the points just made, make points and connect the two calling this line *e*; connect each point with the corresponding point in *d*.
4. In the short lines, one-eighth inch from *e*, and in *e*, one-eighth inch from the short lines respectively make points; connect points in adjacent lines and erase corners.
5. In *d* one-half inch, and one inch from *a* make points and erase lines between points. In same line one half inch and one inch from *b* make points and erase line between points.
6. In *b* one-half inch, and one inch from *d* make points, and erase line between points. In same line one half-inch, and one inch from *c* make points, and erase line between points.
7. In *c* one half-inch, and one inch from each extremity make points and erase both half inch lines.
8. In the corner one half inch from *b* and seven-eighths of an inch from *c* make a point. Two inches and three-fourths to the left of this point, make a point, and connect the two. One-half inch below and parallel with the line just drawn, draw another line, and connect the corresponding ends of the two lines. In the parallel lines one-eighth of an inch from the left end of the oblong, make points and connect. In the same lines one fourth of an inch to the right of the line just drawn, make points and connect. Erase the parts of the parallel lines between the last two lines drawn. Continue until eight small oblongs have been drawn similar to the one just completed.
9. Construct and divide three other large oblongs of the same size as the one first drawn. Make the oblongs three eighths of an inch apart.

Teach definition of (*a*) Map, (*b*) Scale. Teach difference between map and other pictures.

(TWO WEEKS.)

II. Draw map of school floor upon which the room is situated.

(TWO WEEKS.)

III. Draw map of school block, and locate all buildings on it.

Two weeks should be taken for review.

MAP DRILL---JOURNEYS.

THREE MONTHS.—(FOUR WEEKS.)

I. Study map of city to give a more perfect idea of a map and its use.

Trace river, railroads and principal streets. Locate public buildings and prominent residences. Give directions and relative distances.

(FOUR WEEKS.)

II. Study map of Kane County.

Let pupils find places to which they have taken journeys, and trace courses of travel. Trace courses of streams and railroads. Estimate and compare distances. Give relative directions.

(FOUR WEEKS.)

III.—Make brief journeys to Lodi and Dundee for sake of drill, and to give idea of distance and representation on map. Note objects of interest.

Learn and compare distances and directions.

(THREE MONTHS.)

A journey down the Fox and Illinois rivers to the Mississippi.

Notice principal objects of interest and define terms. In taking the journey, a good map of Illinois should be in constant use; distances from place to place should be given and compared with distances previously given..

The following points should be made:

OTTAWA:—(*a*) location—mouth of river, (*b*) size, (*c*) starch factory, (*d*) glass works, (*e*) artesian wells, (*f*) canal—(1) how used, (2) for what used.

LASALLE:—(*a*) coal mining, (*b*) glass works, (*c*) cement works, (*d*) great zinc works, (*e*) terminus of canal.

PERU:—(*a*) glass works, (*b*) coal mining.

PEORIA:—(*a*) size—compare with size of Aurora, (*b*) manufactures, (1) whiskey, (2) plows, (3) wagons.

PEKIN.

HAVANA.

Notice, (1) increase of size toward mouth of river, (2) importance of river, (3) mouth of river, (4) the Mississippi river.

It will be found that too much time has not been allowed for the foregoing journeys if proper attention is given to the subjects, canal, glass, coal, and zinc.

FIFTH GRADE.

(FOUR MONTHS.)

BOOKS.

A good map of the United States should be in constant use while giving the lessons enumerated below, from *Guyot's Introduction*.

I. (SIX WEEKS.)

Lead pupils up the Mississippi to its source, then take *Journey Fourth*, pages 12, 13, 14, 15, 16, 17, 18 and 19.

Give actual and relative distances frequently.

II. (TWO WEEKS.)

Ascend the Mississippi river to the Ohio and the Ohio to Cincinnati and take *Journey Third*, pages 10 and 11.

III. (FOUR WEEKS.)

Take *Journey Second*, pages 6, 7, 8 and 9, and *Journey First*, pages 2, 3, 4 and 5.

IV. (THREE WEEKS.)

Travel to the Hudson river and take *Journey Fifth*, pages 21, 22, 23, 24 and 25.

Give one week's review.

(THREE MONTHS.)

V. (FOUR WEEKS.)

Enter the Erie canal and take *Journey Sixth*, pages 26, 27 and 28, and *Journey Seventh*, pages 29, 30, 31 and 32.

VI. (ONE WEEK.)

Return by the Erie canal to the Hudson and take *Journey Eighth*, pages 32 and 33.

VII. (ONE WEEK.)

Cross Lake Champlain and take *Journey Ninth*, pages 34 and 35.

VIII. (TWO WEEKS.)

Cross the St. Lawrence river and take *Journey Twelfth*, pages 46, 47, 48 and 49.

IX. (TWO WEEKS.)

Cross the continent and take *Journey Tenth*, pages 36, 37, 38 and 39.

X. (TWO WEEKS.)

Take *Journey Eleventh*, pages 40, 41, 42 and 43.

FIRST GLOBE LESSONS.

(THREE MONTHS.)

1. First view of a vessel coming in from sea. 2. Circumnavigation of the earth. 3. Apparent shape of earth.
4. Real shape. 5. Idea and definition of a sphere.
6. Idea, definition, and use of a globe. 8. Colors of globe.
7. Idea and definition of the earth's surface. 9. Divisions of surface—land and water. 10. Proportion of land and water. (Read *The Atlantic Ocean*, pages 65, 66 and 67, also matter found on pages 103, 104, 105 and 106, *Journey Book*.)
11. Division of water—from lake teach ocean. 12. Names of the five great oceans—read *Journey*. 13. Divisions of land—from island teach continent. 14. Names of continent, relative size and position. 16. Coast :—(a) gulf, (b) bay, (c) sound, (d) strait, (e) channel, (f) peninsula, (g) cape. 16. Surface of a continent:—(a) highlands, (1) mountains, (2) plateau; (b) lowlands, (1) valley, (2) plain.
17. Circles:—(a) equator, (b) tropics, (c) parallels, (d) poles, (e) polar circles. 18. Latitude. 19. Zones. 20. Northern and Southern Hemispheres. 21. Climate—general idea.
23. Meridian—longitude. 23. Eastern and Western Hemispheres. 24. Show that climate depends on latitude.
25. *Journey Thirteenth, Journey Book*, pages 50, 51, 52 and 53.

SECOND SERIES.

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SIXTH GRADE.  
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(FOUR MONTHS.)

I.—City of Aurora.

1. DEFINITION OF CITY;—Meaning of name;—when and by whom first settled.
2. ADVANTAGES:—(a) Railroads, (b) water power, (c) stone-quarry, (d) brickyards.
3. LEADING INTERESTS:—(a) Railroad machine shops, (b) Hoyt's machine shops, (c) silver - plating factory, (d) carriage factories, (e) sash and blind factory, (f) woolen mills, (g) flouring mills, (h) trade in grain and pork.
4. POPULATION.
5. GOVERNMENT.

Write a composition on the city of Aurora.

Hang up map of county.

II.—Township of Aurora.

1. DEFINITION OF A TOWNSHIP.—(Size).
2. CITIES AND VILLAGES.
 - (a) Aurora, (already studied).
 - (b) MONTGOMERY:—
 - (1) *Advantages*;—(aa) Railroad, (bb) water-power.
 - (2) *Leading Interests*;—(aa) Flouring mills, (bb) sash factory.
 - (c) NORTH AURORA:—
 - (1) *Advantages*;—(aa) Railroad, (bb) water-power.

- (2) *Leading Interests*;—(*aa*) Foundry, (*bb*) mills, (*cc*) cheese factory.

3. LOCATION OF TOWNSHIP.

III.—Kane County.

1. DEFINITION OF A COUNTY.

Draw map, locating other townships in county.

DIRECTIONS.

1. Draw an oblong, making the vertical lines 35 inches long, and the horizontal lines 21 inches long.
2. Make points dividing the vertical lines into five equal parts.
3. Connect corresponding opposite points.
4. Trisect the horizontal lines.
5. Connect corresponding opposite trisecting points.
6. Upon the two upper horizontal lines and their extensions, one inch to the right of each vertical line make points and connect.
7. Extend the two upper horizontal lines to the vertical line last made.
8. Erase the original vertical lines which come between the upper two horizontal lines; also the left projecting end of the upper horizontal line.

2. BOUNDARY OF AURORA. 3. County Seat—why so-called.

4. IMPORTANT CITIES AND VILLAGES.

(a) BATAVIA:—

- (1) *Advantages*;—(*aa*) Railroads, (*bb*) water power, (*cc*) stone-quarry.
- (2) *Leading Interests*;—(*aa*) Paper mill, (*bb*) wagon factories, (*cc*) windmill factory, (*dd*) foundries, (*ee*) pump works.

(b) GENEVA:—

- (1) *Advantages*;—(*aa*) Railroads, (*bb*) water power, (*cc*) quarry.
- (2) *Leading Interests*;—(*aa*) Flouring mill, (*bb*) iron foundry.

(c) ST. CHARLES:—

- (1) *Advantages*;—(*aa*) Railroads, (*bb*) water power.
- (2) *Leading Interests*;—(*aa*) Flouring mills, (*bb*) iron foundry, (*cc*) paper mills (brown wrapping paper.)

(d) ELGIN:—

- (1) *Advantages*;—(*aa*) Railroads, (*bb*) water power.
- Leading Interests*;—(*aa*) Flouring mills, (*bb*)

woolen mills, (*cc*) iron works, (*dl*) watch factory, (*ee*) boot and shoe factory, (*ff*) agricultural works, (*gg*) foundry, (*hh*) milk-condensing factory, (*ii*) great dairy centre.

(*e*) DUNDEE:—

(1) *Advantages*;—(*aa*) Railroad, (*bb*) water power, (*cc*) brick yards.

(2) *Leading Interests*;—(*aa*) Two flouring mills, (*bb*) iron-bolt factory, (*cc*) woolen mills, (*dl*) sash factory.

Hang map of Illinois before the children.

Locate and bound Connty.

IV. State of Illinois.

1. DEFINITION OF A STATE.

Have pupils draw map of State.

DIRECTIONS FOR DRAWING.

1. Draw a vertical line. 1.
2. Bisect this line and trisect the upper half, calling each of the parts one measure, [1 M.]
3. One and one-fourth M's to the right and one and one-fourth M's to the left of the upper end of 1, make points.
4. Connect these points by the horizontal line, A.
5. Two and one-half M's below A make a point in 1.
6. One and one-half M's to the right, and two M's to the left of this point, make points.
7. Connect these points by the horizontal line B.
8. Three M's below B make a point in 1.
9. A little less than one M to the right of this point make a point.
10. Connect these points by the horizontal line C.
11. One and three-fourths M's above, and one M below the right end of B make points.
12. Connect these points by the vertical line D.
13. Connect the left ends of A and B; the left end of B with the lower end of 1; the lower end of 1 with the right end of C; the right end of C with the lower end of D, and the upper end of D with the right end of A.

(Hang up map of Illinois.)

Cause pupils to trace the courses of the following rivers: Rock, Illinois, Sangamon, Fox, DesPlaines, Kankakee, Kaskaskia, Big Muddy, and Little Wabash. Tell into what each empties.

Cause pupils to locate the following places: Aurora, Chicago, Elgin, Rockford, Galena, Rock Island, Moline, Galesburg, Quincy, Peoria, Springfield, Cairo, Carbondale, Centralia, Decatur, Bloomington, Peru, LaSalle, Ottawa, Champaign, Joliet.

Tell for what these places are noted.

Locate the different State Institutions, and the seat of government.

Give definition of the capital of state.

Have pupils write a composition on the City of Chicago.

Have pupils locate the principal railroads in the state, giving their termini and the principal places through which they pass.

I.—Illinois Central.

1. MAIN LINE:—

- (a) *Termini*;—(1) Cairo, (2) Dunleith.
- (b) *Principal Places*;—(1) Carbondale, (2) Centralia, (3) Decatur, (4) Bloomington, (5) LaSalle, (6) Mendota, (7) Dixon, (8) Freeport, (9) Galena.

2. CHICAGO BRANCH:—

- (a) *Termini*;—(1) Chicago, (2) Centralia.
- (b) *Principal Places*;—(1) Kankakee, (2) Champaign.

II. Chicago and Northwestern.

1. ILLINOIS DIVISION:—

(a) GALENA BRANCH;—

- (1) *Termini*;—(aa) Chicago, (bb) Galena.
- (2) *Principal Places*;—(aa) Elgin, (bb) Belvidere, (cc) Rockford, (dd) Freeport.

(b) FULTON BRANCH;—

- (1) *Termini*;—(aa) Chicago, (bb) Fulton.
- (2) *Principal Places*;—(aa) Dixon, (bb) Sterling.

III. Chicago, Burlington and Quincy.

- (1) *Termini*;—(a) Chicago, (b) Burlington and Quincy.
- (2) *Principal Places*;—(a) Aurora, (b) Mendota, (c) Galesburg, (d) Monmouth.

IV. Chicago, Rock Island and Pacific.

- (1) *Termini*;—(a) Chicago, (b) Rock Island.
- (2) *Principal Places*;—(a) Joliet, (b) Ottawa, (c) LaSalle, (d) Peru, (e) Geneseo.

V. Alton and St. Louis.

- (1) *Termini*;—(a) Chicago, (b) St. Louis.
- (2) *Principal Places*;—(a) Joliet, (b) Pontiac, (c) Bloomington, (d) Springfield, (e) Alton.

VI. Great Western.

- (1) *Termini*;—(a) Quincy, (b) Toledo, Ohio.
- (2) *Principal Places*;—(a) Jacksonville, (b) Springfield, (c) Decatur.

VII. Ohio and Mississippi.

- (1) *Termini*;—(a) St. Louis, (b) Cincinnati, Ohio.

Have pupils bound State.

DISTINGUISHING FEATURES.

I. **SURFACE**:—Level or gently undulating, with bluffs along the Mississippi and Ohio rivers.

II. **ADVANTAGES**:—

- (1) Water communication with the world by means of the Mississippi river and the Great Lakes.
- (2) A great-net work of railroads.
- (3) Extensive lead mines in the northwest.

- (4) Very valuable coal mines.
- (5) A mild climate.
- (6) Exceedingly fertile soil, adapted to the growth of the different grains.

III. LEADING INTERESTS:—

- (1) *Manufacturing*;—(a) Agricultural implements, (b) iron castings, (c) steam engines, (d) wagons and carriages, (e) leather-boots and shoes, (f) flour and meal, (g) liquors, (h) glass, (i) zinc, etc.
- (2) *Mining*;—(a) Lead, (b) coal.
- (3) *Farming*;—(c) Corn, (d) wheat, (e) oats, (f) hay, (g) potatoes, (h) fruit, (i) wool and butter, (j) beef and pork.

Illinois produces the most wheat and corn of any State in the Union.

It is the second manufacturing state west of the Alleghany Mountains, and one of the largest in the United States.

Its lead mines are among the most productive known.

(THREE MONTHS.)

Have pupils draw maps of Wisconsin, Indiana, Missouri, and Iowa; locate some of the principal cities, and trace a few of the principal rivers and trunk railroads.

Study briefly the *distinguishing features* of these States under the heads of *Surface*, *Advantages*, and *Leading Interests*.

WISCONSIN.

I. Cities.

- (1) Milwaukee, (2) Fond du Lac, (3) Oshkosh, (4) La Crosse, (5) Janesville, (6) Madison.

II. Rivers.

- (1) St. Croix, (2) Wisconsin, (3) Wolf, (4) Fox.

III. Railroads.

1. Chicago and North Western, Wisconsin Division, (2) Milwaukee and St. Paul.

CONSTRUCTION LINES FOR MAP.

1. Make a vertical line 1 and divide it into 5 equal parts calling each M.
2. 2 M's to the left of the upper end of 1 make a point and draw the horizontal line A.
3. 2 M's below A make a point in the vertical line 1.
4. A little less than $2\frac{1}{2}$ M's to the left, and 2 M's to the right make points and connect by the horizontal line B.
5. $\frac{2}{3}$ of an M to the left, and 2 M's to the right of the lower end of 1 make points and connect by the horizontal line C.
6. Bisect A and make a point $\frac{2}{3}$ of an M above the right end of B.
7. Connect the bisecting point in A with the point last made.
8. Connect the last point made with the right end of C.
9. Connect the left ends of A and B, and the left ends of B and C.

INDIANA.

I. Cities.

- (1) Ft. Wayne, (2) Logansport, (3) Indianapolis, (4) Terre Haute, (5) Vincennes, (6) Evansville.

II. Rivers.

- (1) Wabash, (2) White.

III. Railroads.

- (1) Michigan Central, (2) Lake Shore and Michigan Southern, (3) Pittsburg and Fort Wayne, (4) Great Western, (5) Ohio and Mississippi.

CONSTRUCTION LINES FOR MAP.

1. Draw a vertical line 1 and divide it into 4 equal parts, calling each part M.
2. A little over one M to the right, and left of the upper end of 1 make points, and connect by the horizontal line A.
3. $2\frac{3}{4}$ M's below the right end of A make a point and connect by the vertical line 2.
4. At the left end of A draw the vertical line 3 corresponding to 1.
5. Connect the lower ends of 1 and 2, and 1 and 3.

MISSOURI.

I. Cities.

- (1) St. Louis, (2) Hannibal, (3) St. Joseph, (4) Kansas City, (5) Jefferson City.

II. Rivers.

- (1) Missouri, (2) Grand, (3) Osage.

III. Railroads.

- (1) Hannibal and St. Joseph, (2) Kansas Pacific.

CONSTRUCTION LINES FOR MAP.

1. Draw a vertical line **I** and divide it into four equal parts, calling each part **M**.
2. $1\frac{1}{2}$ M's to the right, and left of the upper end of **I** make points and connect by the horizontal line **A**.
3. $\frac{3}{4}$ of an **M** to the left, and $3\frac{1}{4}$ M's to the right of the lower end of **I** make points, and connect with the horizontal line **B**.
4. $2\frac{1}{2}$ M's above the left end of **B** make a point, and connect this point with the left ends of **A** and **B**.
5. Connect the right ends of **A** and **B**.
6. Make a square having each side $\frac{1}{2}$ M on the lower side, and at the right end of **B**.

IOWA.

I. Cities.

- (1) Dubuque, (2) Clinton, (3) Davenport, (4) Burlington, (5) Cedar Rapids, (6) Council Bluffs.

II. Rivers.

- (1) Cedar, (2) Des Moines.

II. Railroads.

- (1) Burlington and Missouri, (2) Chicago and North Western (3) Chicago, Rock Island and Pacific.

CONSTRUCTION LINES FOR MAP.

1. Draw a vertical line **I** and Trisect, calling each part **M**.

2. 2 M's to the left, and right of the upper end of 1 make points and connect by the horizontal line A.

3. 1½ M's to the left, and 2 M's to the right of the lower end of 1 make points and connect the horizontal line B.

4. Connect the left ends of A and B.

5. Bisect 1, and 3 M's to the right of this point make a point.

6. Connect this point with the right ends of A and B.

THE UNITED STATES.

(THREE MONTHS.)

- I. Position.
- II. Size.
- III. Natural Divisions.
- IV. Population.
- V. Government.
- VI. Political Divisions.
- VII. Important Routes of Travel.

I. Position.

- 1. ABSOLUTE:—(a) Latitude; (b) Longitude.
- 2. RELATIVE:—(a) Boundary.

II. Size.

- 1. LENGTH AND BREADTH.
- 2. AREA.

III. Natural Divisions.

- 1. PACIFIC HIGHLANDS:—(a) Position; (b) extent; (c) surface,—(1) Mountains—Rocky, Sierra Nevada,—(2) Plateaus—Green River Plateau, Utah Basin, Colorado Plateau, Columbia Plateau;—(3) Plains—Coast Plains Valleys,—(4) Waters—(aa) Rivers—Columbia, Green, Sacramento, Rio Gila, Colorado, Humboldt, San Joaquin,—(bb) Lakes—Great Salt Lake.

2. ATLANTIC HIGHLANDS:—(*a*) Position; (*b*) extent; (*c*) Surface,— (1) Mountains—White, Green, Adirondacks, Blue Ridge, Alleghany, Cumberland,— (2) Plateau,— Eastern, Western,— (3) Plains—Coast Plains, Valleys,— (4) Waters,— (*aa*) Rivers—St. Lawrence, Penobscot, Kennebec, Merrimac, Connecticut, Hudson, Delaware, Potomac, James, Roanoke. St. John's, Savannah, Alabama,—(*bb*) Lakes—Ontario, Erie.
3. CENTRAL PLAIN:—(*a*) Position; (*b*) extent; (*c*) surface,— (1) One Great Plain,— (2) waters, (*aa*) Rivers—Mississippi, Rock, Illinois, Tennessee, Red, Arkansas, Missouri, Ohio,—(*bb*) Lakes—Michigan, Superior.

IV. Population.

- (*a*) Number, (*b*) Nationality, (*c*) Distribution, (*d*) Character, (*e*) Chief Occupations:—(1) mining, (2) agriculture, (3) manufacturing, (4) commerce, (5) lumbering, (6) grazing, (7) fishing.

V. Government.

VI. Political Divisions.—(*a*) States, (*b*) Territories.

REPRESENTATIVE STATES.

Teach each of the following named States according to the plan suggested below.

- | | |
|----------------|-------------------|
| 1. California. | 2. Massachusetts. |
| 3. Louisiana. | 4. Maine. |
| 5. Texas. | 6. New York. |

PLAN OF STUDY.

1. Location,—absolute and relative.
2. Physical Characteristics,—surface, climate.
3. Advantages. 4. Leading interests. 5. Cities.
6. Relative importance with respect to area, population, commercial interests.

SEVENTH GRADE.

NORTH AMERICA.

(FOUR MONTHS.)

- I. Position.
- II. Size.
- III. Form.
- IV. Natural Divisions.
- V. Coast.
- VI. Climatic Divisions.
- VII. Political Divisions.
- VIII. Important Routes of Travel.

I. Position.

- 1. ABSOLUTE:—(*a*) Latitude, (*b*) Longitude.
- 2. RELATIVE:—(*a*) Boundary.

II. Size.

- 1. LENGTH AND BREADTH.
- 2. AREA.

III. Form.

(Draw Map—See Guyot's Common School Geography).

IV. Natural Divisions.

- 1. WESTERN HIGHLAND:—(*a*) Position; (*b*) Extent; (*c*) Surface,—(1) Mountains—Rocky, Sierra Nevada, Cascade,—(2) Plateaus—Alaska, Utah Basin, Colorado Plateau, Columbia Plateau, Green River Plateau, Mexico, Central America,—(3) Plains—Coast Plains, Valleys,—(4) Waters,—(*aa*) Rivers—Yukon, Columbia, Colorado, Rio Gila, Frazier, Sacramento, Sources of rivers of

Middle Plain,—(*bb*) Lakes—Great Salt Lake, Smaller salt lakes.

2. EASTERN HIGHLANDS:—(*a*) Position; (*b*) Extent; (*c*) Surface,—(1) Mountains—White, Green, Adirondacks, Blue Ridge, Alleghany, Cumberland,—(2) Plateaus—Labrador, Height of Land, Eastern and Western Slopes,—(3) Plains—Coast Plains, Valleys,—(4) Waters,—(*aa*) St. Lawrence System,—(*aaa*) Rivers—St. Lawrence, Ottawa,—(*bbb*) Lakes—Superior, Michigan, Huron, Erie, Ontario,—(*bb*) Atlantic System,—(See outline U. S.)
3. MIDDLE PLAINS:—(*a*) Position; (*b*) Extent; (*c*) Surface,—(1) Plains—Great Northern Plain, Hudson Bay Plain, Mississippi Valley,—(2) Waters,—(*aa*) Mackenzie System,—(*aaa*) Rivers—Mackenzie, Athabasca,—(*bbb*) Lakes—Deer, Bear, Slave,—(*bb*) Hudson Bay System,—(*aaa*) Rivers—Nelson, Churchill,—(*bbb*) Lakes—Winnipeg,—(*cc*) Mississippi System,—(*aaa*) Rivers—Mississippi, Ohio, Illinois, Missouri, Tennessee, Arkansas.

V. Coast.

1. NORTHERN COAST:—(*a*) Character; (*b*) Indentations,—Hudson Bay, Baffin's Bay; (*c*) Projections,—(*aa*) Peninsulas—Boothia, Melville, Labrador,—(*bb*) Capes—Barrow, Bathurst, Chudleigh; (*d*) Islands—Arctic Archipelago, Iceland, Greenland.
2. EASTERN COAST:—(*a*) Character; (*b*) Indentations,—(*aa*) Gulfs—St. Lawrence, Mexico,—(*bb*) Bays—Chaleurs, Massachusetts, Delaware, Chesapeake,—(*cc*) Sounds—Long Island, Albemarle; (*c*) Projections,—(*aa*) Peninsulas—Florida, Yucatan,—(*bb*) Capes—Cod, Charles, Henry, Hatteras, Henlopen, Sable, Catoche; (*d*) Islands,—New Foundland, Long, Bahama, West Indies.
3. WESTERN COAST:—(*a*) Character; (*b*) Indentations,—Gulf of California; (*c*) Projections,—(*aa*) Peninsulas—Alaska, Aliaska, Kenai, Lower California,—(*bb*) Capes—Flattery, Mendocino, San Lucas; (*d*) Islands,—Santa Barbara.

VI. Climatic Divisions.

1. COLD REGION:—(*a*) Location; (*b*) climate; (*c*) plants; (*d*) animals.
2. TEMPERATE REGION:—(*a*) Location; (*b*) climate; (*c*) plants; (*d*) animals.
3. WARM REGION:—(*a*) Location; (*b*) climate; (*c*) plants; (*d*) animals.

VII. Political Divisions.

1. BRITISH AMERICA:—(*a*) Position; (*b*) Extent; (*c*) Divisions,—(*aa*) Northwest Territory, (*bb*) New Foundland, (*cc*) Canada,—(1) Divisions—Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward's Isle,—(2) Government,—(3) People—Esquimaux, Whites,—(4) Cities—Ottawa, Montreal, Quebec, Toronto.
2. UNITED STATES:—(See Outline of U. S.) (Review.)
3. MEXICO:—(*a*) Position; (*b*) Character of People; (*c*) Occupations,—(1) Agriculture, (2) Mining; (*d*) Productions,—(1) Tropical fruits, (2) Sugar, (3) Indigo, (4) Coffee, (5) Silver, (6) Mercury; (*e*) Government; (*f*) Cities—Mexico, Puebla, Acapulco, Vera Cruz.
4. CENTRAL AMERICA:—(*a*) Position.

EUROPE.

(THREE MONTHS.)

- I. Position.
- II. Size.
- III. Form.
- IV. Natural Divisions.

- V. Coast.
- VI. Political Divisions.
- VII. Rank among the Continents.

I. Position.

- 1. ABSOLUTE:—(a) Latitude; Longitude.
- 2. RELATIVE:—(a) Boundary.

II. Size.

- 1. LENGTH AND BREADTH.
- 2. AREA.

III. Form.

(Draw map—See Guyot's Common School Geography.)

IV. Natural Divisions.

- 1. HIGH EUROPE:—(a) Position; (b) Extent; (c) Surface,—
 - (1) Mountains—Alps, Apennines, Pyrenees, Carpathian,—
 - (2) Plateaus—German Highlands, Basin of Bohemia, Plateau of Transylvania, Table-land of Spain,—
 - (3) Plains—of France, of North Sea, of Lombardy,—
 - (4) Waters,—(aa) Rivers—Rhone, Rhine, Soane, Loire, Seine, Elbe, Weser, Oder, Po, Danube, Ebro, Garonne,—
 - (bb) Lakes—Constance, Geneva, Garda.
- 2. LOW EUROPE:—(a) Position; (b) Extent; (c) Surface,—
 - (1) Mountains—Ural, Caucasus, Scandinavian,—
 - (2) Plateaus—Scandinavian Highlands,—(3) Plains—
 - Plains of Scandinavia, Great Russian Plain,—
 - (4) Waters,—(aa) Caspian System,—(aaa) Rivers—Volga, Ural,—(bbb) Lakes—Caspian Sea,—(bb) Black Sea System,—(aaa) Rivers—Don, Dnieper,—(bbb) Lakes—Black Sea, Azov Sea,—(cc) Baltic System,—(aaa) Rivers—Duna, Nieman,—(bbb) Lakes—Onega, Ladoga,—(dd) Arctic System,—(aaa) Rivers—Dwina, Petchora.

V. Coast.

- 1. SOUTHERN COAST:—(a) Character; (b) Indentations,—
 - Aegean Sea, Adriatic Sea, Gulf of Genoa, Gulf of Lyons;
- (c) Projections,—Hellenic Peninsula, Italy

Spain; (*d*) Islands—Grecian Archipelago, Crete, Corsica, Sardinia, Sicily, Balearic Isles.

2. WESTERN COAST:—(*a*) Character; (*b*) Indentations—Bay of Biscay, English Channel, North Sea, Skager Rack; (*c*) Projections—Bretagne, Denmark, Scandinavia; (*d*) Islands—British Isles, Shetland.
3. NORTHERN COAST:—(*a*) Character; (*b*) Indentations—White Sea.

VI. Political Divisions.

1. MONARCHIES. 2. REPUBLICS.

VII. Rank Among the Continents.

1. AS TO SIZE.
2. AS TO CIVILIZATION.

REPRESENTATIVE NATIONS.

I. British Isles.

1. POSITION:—(*a*) Absolute; (*b*) Relative.
2. DIVISIONS:—(*a*) England; (*b*) Wales; (*c*) Scotland; (*d*) Ireland.
3. CLIMATE.
4. PEOPLE:—(*a*) Occupations—(1) mining, (2) manufacturing, (3) commerce; (*b*) Productions—(1) coal, (2) iron, (3) tin, (4) cotton goods, (5) woolen goods, (6) hardware and cutlery; (*c*) Government; (*d*) Religion.
5. CITIES:—(*a*) London; (*b*) Liverpool; (*c*) Manchester; (*d*) Edinburgh; (*e*) Glasgow; (*f*) Dublin; (*g*) Belfast.

II. France.

1. POSITION.—(*a*) Absolute; (*b*) Relative.
2. CLIMATE.
3. PEOPLE:—(*a*) Occupations—(1) agriculture, (2) manufacturing, (3) commerce; (*b*) Productions—(1) grains, (2) flax, (3) grapes, (4) mulberry, (5) olive, (6) beet, (7) lace and silks, (8) woolen goods, (9) cutlery,

sugar; (*c*) Government; (*d*) Religion.

4. CITIES:—(*a*) Paris; (*b*) Lyons; (*c*) Marseilles; (*d*) Brest; (*e*) Havre.

III. German Empire.

1. POSITION:—(*a*) Absolute; (*b*) Relative.
2. DIVISIONS.
3. CLIMATE.
4. PEOPLE:—(*a*) Occupations—(1) agriculture, (2) mining, (3) grazing, (4) manufacturing, (5) commerce; (*b*) Productions—(1) grains, (2) tobacco, (3) grapes, (4) live stock, (5) wool, (6) coal, (7) iron, (8) lead, (9) copper, (10) zinc; (*c*) Government; (*d*) Religion.
5. CITIES:—(*a*) Berlin; (*b*) Hamburg; (*c*) Munich; (*d*) Dresden; (*e*) Bremen; (*f*) Strasburg.

IV. Russia.

1. POSITION:—(*a*) Absolute; (*b*) Relative.
2. CLIMATE.
3. PEOPLE:—(*a*) Character; (*b*) Occupations—(1) manufacturing, (2) agriculture, (3) grazing, (4) lumbering, (5) fishing, (6) commerce; (*c*) Productions—(1) wheat, (2) flax, (3) hemp, (4) iron, (5) gold, (6) salt, (7) platinum, (8) linen and woolen goods, (9) candles, (10) leather, (11) live stock, (12) wool, (13) beef, (14) tallow, (15) hides; (*d*) Government; (*e*) Religion.
4. CITIES:—(*a*) St. Petersburg; (*b*) Riga; (*c*) Odessa; (*d*) Moscow; (*e*) Nijni Novgorod; (*f*) Warsaw.

ASIA.

(THREE MONTHS.)

- I. Position.
- II. Size.
- III. Form.
- IV. Natural Divisions.
- V. Coast.
- VI. Political Divisions.

I. Position.

1. ABSOLUTE:—(*a*) Latitude; (*b*) Longitude.
2. RELATIVE—Boundary.

II. Size.

1. COMPARATIVE.

III. Form.

(Draw map. See Guyot's Common School Geography.)

IV. Natural Divisions.

1. CENTRAL HIGHLANDS:—(*a*) Position; (*b*) Extent; (*c*) Surface,—(1) Mountains—Himalaya, Altai, (2) Plateaus—Thibet, China Desert, Plateau of Siberia, Table-land of Iran, (3) Lowlands—Few Valleys, (4) Waters—Sources of all the great rivers of Asia, a few small mountain lakes.
2. BORDER PLAINS:—(*a*) Position; (*b*) Extent; (*c*) Surface,—(1) Plains—of Hindostan, of Indo-China, of Coast, along lower courses of great rivers, The Great Tundras, (2) Waters,—(*aa*) Rivers—(*aaa*) of South—Tigris, Enphrates, Indus, Ganges, (*bbb*) of East—Hoang-Ho, Amoor, Yang-tse-Kiang, (*ccc*) of North—Lena, Obi, Yenisei,—(*bb*) Lakes—Baikal, Balkhash, Tengri Nor, Van, Aral Sea, Dead Sea.

V. Coast.

1. SOUTHERN COAST:—(*a*) Character; (*b*) Indentations—Persian Gulf, Arabian Sea, Bay of Bengal, South China Sea; (*c*) Projections—Peninsula of Hindostan, Peninsula of Indo-China, Malay Peninsula; (*d*) Islands—Ceylon, Borneo, Java, Sumatra, Philippine.
2. EASTERN COAST:—(*a*) Character; (*b*) Indentations—Okhotsk Sea, Japan Sea, Yellow Sea; (*c*) Projections—Corea, Kamchatka; (*d*) Islands—Formosa, Japan, Saghalien.
4. NORTHERN COAST:—(*a*) Character; (*b*) Islands—Nova Zembla, New Siberia.

VI. Political Divisions.

REPRESENTATIVE NATIONS.

Study the Chinese Empire and the Japanese Empire according to plans already familiar.

EIGHTH GRADE.

SOUTH AMERICA.

(TWO MONTHS.)

- I. Position.
- II. Size.
- III. Form.
- IV. Natural Divisions.
- V. Coast.
- VI. Climatic Divisions.
- VII. People.
- VIII. Political Divisions.

I. Position.

1. ABSOLUTE:—(*a*) Latitude; (*b*) Longitude.
2. RELATIVE:—Boundary.

II. Size.

1. COMPARATIVE.

III. Form.

(Draw map. See Guyot's Common School Geography.)

IV. Natural Divisions.

1. ANDES HIGHLANDS:—(*a*) Position; (*b*) Extent; (*c*) Surface,—(1) Mountains—Double range of Andes, (2) Plateaus—Summit of Andes, Table-land between

ranges, (3) Lowlands—Valleys and Slopes, (4) Waters—Sources of Rivers, Mountain Lakes.

2. EASTERN HIGHLANDS:—(*a*) Position; (*b*) Extent; (*c*) Surface,—(1) Mountains—Brazilian, (2) Plateaus—Brazil, Guiana, (3) Plains—Coast Plains, Valleys, (4) Waters—Rivers—Parana, Tapajos, Xingo, San Francisco, Tocantins.
3. CENTRAL DEPRESSION:—(*a*) Location; (*b*) Extent; (*c*) Surface,—(1) One Great Central Plain, (2) Waters—(*aa*) Amazon System, (*bb*) LaPlata System, (*cc*) Orinoco System.

V. Coast.

1. NORTHERN COAST:—(*a*) Character; (*b*) Indentations—Gulf of Darien, Gulf of Venezuela; (*c*) Projections—Cape Gallinas; (*d*) Islands—Margarita, Trinidad.
2. EASTERN COAST:—(*a*) Character; (*b*) Indentations—Bay of All Saints, Gulf of Matias; (*c*) Projections—Cape Frio, Cape Horn; (*d*) Islands—Marajo, Falkland, Magellan.
3. WESTERN COAST:—(*a*) Character; (*b*) Indentations—Gulf of Arica; (*c*) Projections—Cape Aguja; (*d*) Islands—Galapagos.

VI. Climatic Divisions.

1. WARM REGIONS:—(*a*) Location; (*b*) Extent; (*c*) Vegetation,—(1) Of Selvas—palm, tree-fern, banana, fig, locust, mahogany, rosewood, vanilla, coca, medicinal plants, (2) Of Llanos—rank grass, flowering plants; (*d*) Animals.
2. TEMPERATE REGION:—(*a*) Location; (*b*) Extent; (*c*) Vegetation,—Of pampas—tall grass, clover, gigantic thistle, prickly bushes; (*d*) Animals.
3. COLD REGION:—(*a*) Location; (*b*) Extent; (*c*) Vegetation; (*d*) Animals.
4. SLOPES OF THE ANDES:—(*a*) Extent; (*b*) Climate; (*c*) Animals.

VII. People.

1. NATIVES:—Indians.

2. WHITES:—(*a*) Dutch; (*b*) French; (*c*) English; (*d*) Spanish; (*e*) Portuguese.

VIII. Political Divisions.

REPRESENTATIVE NATIONS.

Study Brazil and Peru according to plans already familiar.

AFRICA.

(ONE MONTH.)

- I. Position.
- II. Size.
- III. Form.
- IV. Natural Divisions.
- V. Coast.
- VI. Climatic Divisions.
- VII. People.
- VIII. Religions.
- IX. Political Divisions.

I. Position.

- 1. ABSOLUTE:—(*a*) Latitude; (*b*) Longitude.
- 2. RELATIVE:—Boundary.

II. Size.

- 1. COMPARATIVE.

III. Form.

(Draw Map. See Guyot's Common School Geography.)

IV. Natural Divisions.

- 1. NORTHERN PLATEAU:—(*a*) Position; (*b*) Extent; (*c*) Surface,—(1) Mountains — Atlas, Kong, (2) Plateaus,

Atlas Highlands, Kong Highlands, Sahara, Nubia,
(3) Waters—(aa) Sources of Coast Rivers, (bb) Lake
Tchad.

2. SOUTHERN PLATEAU:—(a) Position; (b) Extent; (c) Surface,—(1) Mountains—Cameron, Blue, Crystal, (2) Plateaus—Interior, Abyssinia.
3. BORDER PLAINS:—(a) Location; (b) Extent; (c) Surface,—(1) Plains—along the coasts, along courses of rivers, (2) Waters—Rivers—Nile, Niger, Umbre, Wambre, Orange, Dori, Jub, Zambesi, Haines, Senegal, Gambia.

V. Coast.

1. NORTHERN COAST:—(a) Character; (b) Indentations—Gulf of Cabes, Gulf of Sidra; (c) Projections—Cape Bon, Cape Sem.
2. EASTERN COAST:—(a) Character; (b) Indentations—Gulf of Aden, Sofala Bay, Mozambique Channel; (c) Projections—Cape Guardafui, Cape Agulhas, (d) Islands—Zanzibar, Madagascar.
3. WESTERN COAST:—(a) Character; (b) Indentations—Bight of Biafra, Gulf of Guinea; (c) Projections—Cape of Good Hope, Cape Frio, Cape Verd, Cape Blanco, Cape Spartel.

VI. Climatic Divisions.

1. TROPICAL AFRICA:—(a) Location; (b) Extent; (c) Divisions as to soil—Desert, Fertile Region.
2. TEMPERATE AFRICA:—(a) Position; (b) Extent; (c) Climate; (d) Vegetation; (e) Animals.

VII. People.

1. NEGROES:—(a) Where found; (b) Character; (c) Occupations.
2. WHITES:—(a) Berbers; (b) Arabs; (c) Moors.
3. KAFFIRS. 4. HOTTENTOTS.

VIII. Religions.

1. PAGAN. 2. MOHAMMEDAN. 3. CHRISTIAN.

IX. Political Divisions.

AUSTRALIA.

(ONE MONTH.)

- I. Position.
- II. Size.
- III. Form.
- IV. Natural Divisions.
- V. Coast.
- VI. Climate.
- VII. Vegetation.
- VIII. Animals.
- IX. People.
- X. Colonies.

I. Position.

- 1. ABSOLUTE:—(*a*) Latitude; (*b*) Longitude.
- 2. RELATIVE:—Boundary.

II. Size.

- 1. COMPARATIVE.

III. Form.

(Draw Map. See Guyot's Common School Geography.)

IV. Natural Divisions.

- 1. EASTERN SWELL:—(*a*) Extent; (*b*) Character; (*c*) Waters—Murray River, Darling River.
- 2. WESTERN SWELL:—(*a*) Extent; (*b*) Character; (*c*) Waters—Swan River, Gascoyne River.
- 3. CENTRAL DEPRESSION:—(*a*) Extent; (*b*) Character; (*c*) Waters—Cooper River, Lake Torrens, Lake Eyre.

V. Coast.

1. NORTHERN COAST:—(*a*) Character; (*b*) Indentations,—Gulf of Carpentaria, Cambridge Gulf; (*c*) Projections,—North Australia, York, Cobry, Cape York, Cape Londonderry.
2. EASTERN COAST:—(*a*) Character.
3. SOUTHERN COAST:—(*a*) Character; (*b*) Indentations,—Spencer Gulf, St. Vincent Gulf, Encounter Bay, Australian Bight; (*c*) Projections,—Cape Wilson, Cape Catastrophe.
4. WESTERN COAST:—(*a*) Character.

VI. Climate.

Warm temperate with wet and dry seasons.

VII. Vegetation.

VIII. Animals.

IX. People.

1. BLACKS:—(*a*) Savage.
2. WHITES:—(*a*) Occupations,—(1) agriculture, (2) grazing, (3) mining; (*b*) Productions,—(1) gold, (2) copper, (3) lead.
3. CITIES.

X. Colonies.

SECOND GLOBE LESSONS,

PHYSICAL GEOGRAPHY.

(THREE MONTHS.)

- I. The relation of the earth to the sun and other heavenly bodies.
- II. Bodies composing the Solar System,—(1) Relative Position, (2) Relative Size.
- III. Movements of bodies in Solar System,—(1) Axial, (2) Orbital.
- IV. Effect of movements.
- V. Circles.

THE EARTH.

I. Land.

1. DISTRIBUTION:—Northern, Southern, Eastern and Western Worlds.
2. STRUCTURE OF CONTINENTS:—(a) Primary Highlands; (b) Secondary Highlands; (c) Central Depressions.
3. ISLANDS:—(a) Continental,—manner of formation; (b) Oceanic—manner of formation,—(1) volcanic, (2) coral.
4. DISTURBANCES:—(a) Volcanoes,—(1) causes, (2) results, (3) relative position; (b) Earthquakes,—(1) cause, (2) kinds, (3) distribution.

II. Water.

1. CONTINENTAL WATERS:—(a) Rivers,—(1) cause, (2) erosion, (3) deposit, (4) relation to land structure (Review the river systems of the several continents); (b),—Lakes,—(1) kinds—mountain lakes, lakes in plains, salt lakes,—(2) geographical distribution.
2. OCEANIC WATERS:—(a) Ocean Basins—(1) form, (2) size; (b) Oceanic movements—(1) waves—cause, (2) tides—cause, (3) Marine currents—polar, equatorial, return.

Cause and directions of the different currents.

Influence of the different currents on adjoining land.

III. Atmosphere.

1. RELATION TO OTHER ELEMENTS.
2. PROPERTIES.
3. CAUSES OF CHANGES OF SEASONS:—(a) Motions of the earth; (b) Relation of the earth to the sun.

CAUSES OF DIFFERENCES OF CLIMATE IN PLACES HAVING SAME LATITUDE:—Mountains, oceans, winds, marine currents, altitude.

(Review *position, climate, natural resources*, and the *occupations* of the different *Representative States* and *Nations* given in the Continents. Make comparisons and give reasons for differences found.)

5. DISTURBANCES:—(a) Winds—constant, periodical, variable; (b) Revolving Storms—hurricanes, typhoons, cyclones.
6. DISTRIBUTION OF VAPOR IN ATMOSPHERE.
7. FORMS OF VAPOR:—(a) Dew; (b) Fog; (c) Clouds; (d) Rain; (e) Snow.
8. DISTRIBUTION OF CLOUDS AND RAIN:—Rain zones.
9. DISTRIBUTION OF SNOW:—Glaciers—formation.

IV. Life on the Earth.

1. VEGETABLE:—(a) Zones of Vegetation, (b) Vegetation in the different continents. (Connect with PLANT WORK.)
2. ANIMAL:—(a) Animal life in the different continents. (Connect with ANIMAL WORK;) (b) Human Family,—Geographical races—characteristics. (Connect with HUMAN BODY WORK.)

GOVERNMENT.

(THREE MONTHS.)

In teaching the following brief view of the plan of our government, the teacher should see that the pupils know, respecting each officer, whether he is elected or appointed, and by whom; his term of office; his duties; for what causes and by what means he may be removed; what constitutes a district or constituency in each case; the name of present incumbent, in each instance, and the length of time he has yet to serve; about caucuses, primary meetings, township, county, district, state and national conventions, including their importance and legal bearing on elections.

Teachers should see, also, that pupils know how governments are sustained. (See 4 and 5, Seventh Grade, NUMBER WORK).

I. The School District.

1. LEGISLATIVE DEPARTMENT:—The Board of Education.
2. JUDICIAL DEPARTMENT:—(See Township, and County Government.)
3. EXECUTIVE DEPARTMENT:—

(a) Superintendent and Teachers; (b) Board of Education.

II. City Government.—(Aurora.)

1. LEGISLATIVE DEPARTMENT:—Aldermen.
2. JUDICIAL DEPARTMENT:—(a) *City Court*,—Officers—judge, clerk, master in chancery, sheriff, constables; (b) *Justices' Courts*,—Officers—justices of the peace, State's attorney, constables, marshal, policemen.
3. EXECUTIVE DEPARTMENT:—Officers—mayor, city clerk, city marshal, treasurer, city attorney, city physician, constables, policemen.

III. Township Government.

1. LEGISLATIVE DEPARTMENT:—The people at *town meeting*.
2. JUDICIAL DEPARTMENT:—*Justices' Courts*,—Officers—justices of the peace, State's attorney, constables.
3. EXECUTIVE DEPARTMENT:—Supervisor, town clerk, assessor, collector, treasurer, highway commissioners, school trustees.

IV. County Government.—(Kane County.)

1. LEGISLATIVE DEPARTMENT:—Board of Supervisors,—Officers—chairman, clerk.
2. JUDICIAL DEPARTMENT:—(a) *County Court*,—Officers,—judge, clerk, State's attorney, sheriff; (b) *Circuit Court*,—Officers—judge, clerk and recorder, master in chancery, State's attorney, sheriff.
3. EXECUTIVE DEPARTMENT:—County clerk, circuit clerk, sheriff, treasurer, county superintendent of schools, surveyor, coroner.

V. State Government.—(Illinois.)

1. LEGISLATIVE DEPARTMENT:—(a) *Senate*,—(1) Officers—president, clerk, (2) time and place of meeting; (b) *House of Representatives*,—(1) Officers—speaker, clerk, (2) time and place of meeting.
2. JUDICIAL DEPARTMENT:—(a) *Supreme Court*,—Officers—chief justice, six associate judges, three clerks—one in each district, attorney general, reporter; (b) *Circuit Court*,—(See **County Government.**)

3. EXECUTIVE DEPARTMENT:—Governor, lieutenant-governor, secretary of state, auditor of public accounts, treasurer, superintendent of public instruction, attorney general, board of equalization, board of public charities.

VI. U. S. Government.

1. LEGISLATIVE DEPARTMENT:—(a) *Senate*,—(1) Officers—president, secretary, sergeant-at-arms, postmaster, door-keeper, (2) time and place of meeting; (b) *House of Representatives*,—(1) Officers—speaker, clerk, sergeant at arms, postmaster, door-keeper, (2) time and place of meeting.
2. JUDICIAL DEPARTMENT:—(a) *Supreme Court*,—(1) Officers—chief justice, nine associate justices, clerk, attorney general, reporter, marshal, (2) time and place of meeting; (b) *Inferior Courts*,—(1) kinds, (aa) *Circuit Courts*,—Officers—a justice of the Supreme Court, Circuit judge, clerk, district attorney, marshal, (bb) *District Courts*,—Officers—district judge, clerk, district attorney, marshal, (cc) *Court of Claims*,—Officers—chief justice, four associate judges, clerk, bailiff, (2) time and place of meeting.
3. EXECUTIVE DEPARTMENT:—Officers, — (1) president, vice president; (2) cabinet—secretary of state, secretary of treasury, secretary of war, secretary of navy, secretary of the interior, postmaster general, attorney general.



BIOGRAPHY.

NOTE.—While it is expected that, in giving the following work, the pupils will become interested in the personal history of the one whose biography is under consideration, it must be borne in mind by the teacher that the object of the work is to teach *United States History*. That the frame work of this historical structure may be symmetrical, the teacher must see that the elements of *place* and *relative time* are properly united with the elements most interesting to the children,—*men* and *events*.

Pupils should consult the map frequently and, when practicable, should draw maps representing plans of military campaigns and other important historical routes of travel. While the pupils should be required to commit to memory but a few dates, they should associate the *time of every event* about which they learn with the few dates they *do* commit to memory, as centres.

FIRST SERIES.

SIXTH GRADE.

CHRISTOPHER COLUMBUS.—(TWO MONTHS.)

EARLY LIFE.

Birth—time and place.

Early education.

Place in which his youth was spent.

Inclination for a sailor's life—causes of this.

MANHOOD.

The then commonly received ideas of the earth's shape.

Views of Columbus—opposition to his views.

Plans for a voyage to test the truth of his theories.

Applications for aid.

His patrons—Ferdinand and Isabella.

Fitting out of vessels.

First voyage—when made, and results.

Second voyage—when made, and results.

Third voyage—when made, and results.

Fourth voyage—when made, and results.

Naming of the West Indies and America.

Influence of his enemies with the king, and what they accomplished toward his injury.

Death and circumstances of his burial, and removal of his body.

Character of Columbus.

Effects of his discoveries on Spanish claims to American territory.

GEORGE WASHINGTON.—(TWO MONTHS.)

EARLY LIFE.

Birth—when and where.

Residence, education, sports.

Occupation during latter part of youth—public surveyor.

MANHOOD.

Service in the French and Indian war.

Rank—Major.

Causes of war—territories of the French and English.

Washington as commissioner to the French.

Braddock's defeat and Washington's valor.

Washington made commander-in-chief.

Close of war.

Results.

Resignation of Washington.

A member of the house of Burgesses of Virginia for fifteen years.

Service in the Revolution.

Condition of colonies at this time.

Causes of the war. Declaration of Independence.

Battle of Lexington.

Brief account of the progress of the war.

Surrender at Saratoga.

Winter at Valley Forge.

Aid from foreign nations.

Yorktown—close of war.

Results.

General statistics of war—number lost, cost, debt, etc.

Service as President.

Condition of states at close of war.

Articles of Confederation,—why faulty.

The Federal Constitution.

Washington elected President.—Place of inauguration.

Length of service.

What accomplished.

First Cabinet, judiciary, mint and bank, French troubles, new states.

Retirement from public life.

Death—when. Where buried.

Character and rank as general and statesman.

ABRAHAM LINCOLN.—(TWO MONTHS.)**EARLY LIFE.**

Birth—when and where.

Early advantages and education.

In what states resident during early life.

MANHOOD.

Service in Black Hawk war—captain.

Return from war,—business,—surveying.

Study of law.

Admission to bar in 1837.

Contest with Douglas—point of contest.

Member of the Legislature.

Character and principles as a politician.

Services as President.

When and by whom elected.

Result of election.

Causes of the rebellion,—remote and immediate,—including the fall of Sumter.

Act of Secession.—Southern Confederacy—its capital and President—of what states formed.

Length and progress of war.

Bull Run.

Emancipation proclamation—result.

Opening of the Mississippi river by Grant.

Sherman's march to the sea.

Fall of Richmond—close of war.

Results of war.

General statistics of war,—number of men killed on each side, expense, etc.

Death of Lincoln—when, by whom killed. (Fate of Booth).

Burial—final obsequies.

Character as a man and statesman.

Monument to his memory.

BENJAMIN FRANKLIN.—(TWO MONTHS.)

EARLY LIFE.

Parentage.

Birth—when and where.

Education.

Period of apprenticeship.

MANHOOD.

Before entering on his public life.

Occupation—Printer.

Editor of Poor Richard's Almanac—Maxims.

Character as a Philosopher.

Public life.

Postmaster at Philadelphia.

Member of general assembly of Pennsylvania.

Electric experiments—lightning rods.

Deputy-general of Post-office department.

Agent of several colonies to Europe.

Member of Continental Congress.

Signer of Declaration of Independence.

Minister to France during Revolution.

Service so rendered.

Return to America.

Character as statesman.

Connection with educational institutions.

Influence on literary world.

Death—when.

PATRICK HENRY.—(TWO MONTHS.)

EARLY LIFE.

Parentage.

Birth—time and place.

Education.

Early disposition and character.

MANHOOD.

First occupation—business—result.

Final occupation—lawyer.

Character and rank as a lawyer.

Public life.

Member of House of Burgesses of Virginia.

Speeches on "Stamp Act," "Tax on Tea," "Boston Port Bill"—effect of these speeches.

Member of Congress.

Affair with Dunmore of Virginia.

Governor of Virginia.

Position of Henry on the adoption of the Federal Constitution.

Final acquiescence.

Death—when.

Character and rank as an American statesman.

SECOND SERIES.

SEVENTH GRADE.

THE CABOTS.—(ONE WEEK.)

Nationality.

Time in which they lived.

First voyage—both father and son.

When made—under whose patronage.

Results.

Second voyage—son only.

When made, under whose patronage.

Results.

English claims on the ground of the discoveries of the Cabots.

MAGELLAN.—(ONE WEEK.)

Nationality.

Time in which he lived.

In whose service engaged while exploring in New World.

Voyage.

When made.

Results.

Straits of Magellan.

Naming of the Pacific Ocean.

Rank as an explorer.

Death—where—how.

First circumnavigation of the globe by one of his ships.

CARTIER.—(ONE WEEK.)

Nationality.

Time in which he lived.

In what nation's service employed.

First voyage.

When made.

Discovery and naming of Bay of Chaleurs.

Second voyage.

When made.

Discovery of St. Lawrence river.

Exploration of its banks.

French claim to territory about the St. Lawrence.

DE SOTO.—(ONE WEEK.)

Nationality.

Time in which he lived.

Short account of expedition with Pizarro.

Voyage of discovery.

Objects of voyage.

Success.

Discovery of Mississippi river.

Death and burial.

Return of his followers.

RALEIGH.—(ONE WEEK.)

Nationality.

Time in which he lived.

During whose reign.

Services.

I. Two vessels sent out for explorations.

Explorations on coasts of the Carolinas, and Virginia.

Name of Country—Virginia—why.

II. First attempt to settle the Carolinas. Results.

III. Second attempt to settle the Carolinas. Results.

CHAMPLAIN.—(ONE WEEK.)

Nationality.

Time in which he lived.

In what nation's service engaged.
His voyage.
When made.
Results.
Founding of Quebec.
Explorations on banks of St. Lawrence.
First permanent French settlement—Port Royal.
Lake Champlain.

JOHN SMITH—(TWO MONTHS.)

EARLY LIFE.

Birth—time and place.
Nationality.
Education.
Adventures of youth.

MANHOOD.

First voyage to America.
When made.
Exploration on coast of Virginia.
Founding a Virginia colony.
Jamestown.
London Company—first charter.
Government of colony—two councils—governor.
John Smith as governor.
Standing among colonists.
Prosperity of colony under him.
His explorations.
Narrow escape.
Friendship of Indians while Smith remained.
The second charter.
Smith's return to England—cause.
Results.
Change of government.

Smith's Second Voyage.

Third charter.
Introduction of slavery.
Indians—wars—results.

Virginia made a royal province.
Death of Smith—when, where.
Injustice of England toward Virginia.
Navigation acts.

HENRY HUDSON.—(TWO WEEKS.)

Birth.
Nationality.

MANHOOD.

Voyage to America.
Object.
In whose service.
Discovery of the Hudson river.
Dutch claims to New York.
Fate of Hudson.
Grant to Dutch West India company.
New Amsterdam (New York.)
Fort Orange—(Albany.)
Government.
Peter Minuit—first governor.
General progress.
Peter Stuyvesant—last governor of the Dutch.
Prosperity under him.
Conquest of New York by the English.
Brief sketch under English rule.
Charter annulled.

MILES STANDISH.—(TWO MONTHS.)

EARLY LIFE.

Birth.
Nationality.
Time in which he lived.

MANHOOD.

His profession.
Circumstances which made him one of the Puritan band.
The Puritans—who were they—why so named.
Sailing of the Mayflower.

Founding of Plymouth colony.

When.

Under whose auspices.

Geography of the country.

The Plymouth company.

Government of the colony—governor and legislature.

Short account of progress of colony.

Difficulties.

Indian troubles.

Services of Standish as a soldier.

Founding of remaining colonies between 1620 and 1638.

Location of each.

Union in 1643.

Death of Standish.

Character of Standish.

Longfellow's poem.

Unjust treatment of colonies by the king of England.

Resistance to the Navigation Acts and to the authority of the king.

Charters annulled.

Internal difficulties.

Religious discussions.

ROGER WILLIAMS.—(TWO WEEKS)

EARLY LIFE.

Birth.

Education.

Time in which he lived.

MANHOOD.

Occupation.

Departure to America.

Cause.

Arrival at Salem.

Occupation there.

His character, views, and peculiar traits.

Banishment.

Purchase of land from the Indians.

Where located.

Providence colony.

His work for the welfare of the colony.

Rhode Island plantation, 1638.

Reasons why these colonies did not join the New England Confederacy.

William's journey to England.

Return with charter.

Union of Providence and Rhode Island.

Government.

Death of Williams—why so noted.

Charter annulled.

Charter resumed.

LORD BALTIMORE.—(ONE WEEK.)

EARLY LIFE.

Nationality.

Religion.

Time in which he lived.

MANHOOD.

Grant from Charles I.

Maryland—location.

Object of obtaining this grant.

Settlement of St. Mary's.

By whom. When.

Government.

Governors—the Calverts.

Toleration act.

Overthrow of the government.

General prosperity.

Cause.

I. Fertile soil.

II. Mild seasons.

III. Ample privileges.

WILLIAM PENN.

EARLY LIFE.

Birth—time—place.

Education.

Expulsion from home—cause.

MANHOOD.

Early manhood.
Religious views.
Voyage to America.
Grant of Pennsylvania. (Meaning of name).
Founding of Philadelphia. (Meaning of name).
Treaty with Indians.
Continued friendship of Indians.
Return to England.
Release of 1,300 Quakers.
Return to America with a band of Quakers.
Government.
His work with the Indians.
Death.
Character.

JAMES OGLETHORPE.—(ONE WEEK.)

EARLY LIFE.

Birth.
Time in which he lived.
Parentage—pet of nobility.

MANHOOD.

Grant of Georgia.
Object in obtaining the grant.
Savannah founded.
Government.
Prosperity.
Georgia became a Royal Province.
Success.
Services of Oglethorpe in British army.
Death.
Character.

SAMUEL ADAMS.—(ONE MONTH.)

EARLY LIFE.

Birth—time and place.
Parentage.

Education.

MANHOOD.

First occupation.

Member of the Massachusetts Assembly.

His service as a member of this body 1766-1789.

Opposition to British king and officers sent by him.

Boston patriots—brief account of the causes which led to their actions.

Originator of the Colonial and Continental Congresses.

Signer of the Declaration of Independence.

Defender of the Declaration.

Death—when and where.

JOHN ADAMS.—(ONE MONTH.)

EARLY LIFE.

Birth—time and place.

Parentage.

Education.

MANHOOD.

Profession—rank as a lawyer.

Position among his countrymen.

Member of Massachusetts Assembly.

Member of first and second congresses.

His service in congress.

Secured the adoption of the Declaration of Independence—
(Outline of this document.)

Commissioner to decide on a treaty of peace and commerce at the close of the Revolution.

Terms of the treaty.

Minister of U. S. to the Court of St. James—the first one.

Vice-President for two terms.

President.

Principles of different parties.

French troubles.

Alien and Sedition Laws.

Party distinctions.

Death—when—where.

Character as man, lawyer and statesman.

EIGHTH GRADE.
-----**ALEXANDER HAMILTON.—(ONE MONTH.)**

EARLY LIFE.

Birth—time and place.

Parentage.

Education.—kind and cause.

Early disposition and character.

MANHOOD.

His early writings and discussions of popular questions.

Character of his writings.

Studied and practiced law.

His service in the Revolution.

Captain in the battles of White Plains, Trenton, and Princeton.

Aide de Camp of Washington.

Secretary of Washington.

Character as a soldier.

His service as statesman.

One of the framers of the Constitution.

Party lines at this time, and points of controversy.

First Secretary of the Treasury.

The debts of the nation and states at this time.

His measures for their payment.

Our finance—brief view.

National mint and bank—*the first*.

Resignation—cause.

Character as a statesman.

Rank as financier.

Death—when—how—fate of Burr.

ROBERT FULTON.—(TWO WEEKS.)

EARLY LIFE.

Birth—time and place.

Parentage.

Education.

MANHOOD.

Early occupation—portrait painting.

Residence abroad.

Later occupation—civil engineering.

Life in France—studies and experiments.

First *successful* application of steam to navigation.

Navigation and navigable waters.

Influence of Fulton's invention on civilization.

Fulton's patent.

Death.

GEORGE STEPHENSON.—(TWO WEEKS.)

EARLY LIFE.

Birth—time and place.

Education.

Occupation as a boy.

Experiments of youth.

MANHOOD.

The then existing railways.

The many attempts to apply steam to railway locomotion.

Stephenson's attention to the subject.

The first railway locomotive.

Effect of his inventions on civilization and commerce.

The multiplicity of railroads now—especially in our country—advantages arising therefrom.

Death of Stephenson.

JAMES MONROE.—(ONE MONTH.)

EARLY LIFE.

Birth—time and place.

Parentage.

Education.

MANHOOD.

Connection with Revolution.

Connection with Constitutional Convention.

His position in regard to the Constitution—an advocate of *State Rights*.

Minister to France.

Governor of Virginia.

His service in the Louisiana purchase.

President.

By what party elected.

I. Missouri Compromise.

II. Monroe Doctrine.

III. Treaty with Great Britain.

IV. Florida.

V. Admission of Illinois, with date. Name other states then admitted.

Condition of parties.

Death.

Character.

DANIEL WEBSTER.—(THREE WEEKS.)

EARLY LIFE.

Birth—time and place.

Parentage.

Education.

MANHOOD.

Profession.

Rank and success in profession.

Representative at the extra session of the Thirteenth Congress. Re-elected.

Points discussed at these sessions.

Parties in power.—Principles of parties.

Rank as an orator.

Selections from some of his debates.

Connection with the Dartmouth College case—points involved—result.

Revision of Massachusetts State Constitution.

His services as Senator 1827-1841.

Condition of parties.

Contest between Webster and Hayne.

Extracts from speeches on both sides.

Secretary of State.
 Connection with Ashburton treaty.
 Re-election to Senate.
 The compromise act.
 Effect of Webster's course on his reputation.
 Secretary of State—under whom.
 Death—cause.
 Character.

J. C. CALHOUN.—(ONE WEEK.)

EARLY LIFE.

Short account of early life.

MANHOOD.

Election to Congress.
 Ability and rank as an orator.
 His stand in regard to political questions.
 Debates.
 His views on Nullification.
 Extracts from his speeches.
 Offices held.
 Secretary of State.
 Head of War Department.
 Vice-President.
 Character.

ANDREW JACKSON.—ONE MONTH.)

EARLY LIFE.

Birth—time and place.
 Parentage—nationality.
 Education.

MANHOOD.

Profession.
 Connection with the Revolution.
 Appointment as solicitor.
 Incidents connected therewith.
 Life in Tennessee.

Connection with Constitution of Tennessee.

War of 1812.

Causes.

His office in war.

Battle of New Orleans.

Results of war.

President.

Cause of election.

Principles of opposing parties.

Rotation in office.

Black Hawk War.

Tariff laws.

Nullification act.

President's attitude to South Carolina.

His financial policy.

U. S. Banks—brief view.

Parties formed—their principles.

Death.

Character.

FREMONT.—(FOUR WEEKS.)

EARLY LIFE.

Birth—time and place.

Education.

Early occupation.

MANHOOD.

Occupation of early manhood.

Connection with railways and navy.

Surveyor and explorer.

Where and in whose service his explorations were made.

New route to California.

His efforts in settling California and in having that territory admitted as a state.

The first Senator from California.

His nomination for the Presidency.

His political views.

Connection with Rebellion.

Character.

Benton (in connection with Fremont—half a week)

Relation to Fremont.

Service as Senator—time he served.

Literary work.

Death.

Character.

WINFIELD SCOTT.—(ONE MONTH.)

EARLY LIFE.

Birth—time and place.

Parentage.

Education.

MANHOOD.

Time of his first joining the army.

His suspension—cause.

Connection with the war of 1812.

Cause of war.

General statistics of war.

Close of war, and results.

His connection with the Mexican war.

His rank.

Cause of the war.

Battles of Monterey and Buena Vista.

Entrance into the city of Mexico.

Close of war—results.

Short account of after life including his short service in the Rebellion.

Death.

Character, and rank as a soldier.

SAMUEL MORSE.—(TWO MONTHS.)

Short account of early life,—nationality and educational advantages.

MANHOOD.

Why noted.

His connection with telegraphy.

His invention—the magnitude of his service.

Extent of telegraphy—lines of telegraph.

Effect of the telegraph on the nation's growth and progress.

CYRUS FIELD.—(TWO WEEKS.)

Short account of early life—nationality, educational advantages.

MANHOOD.

Why noted.

His studies and experiments.

When he first attracted attention.

The Atlantic Cable—its history.

Improvements upon the first one—its value.

Its effect upon civilization and international communication and union.

CHARLES SUMNER.—(ONE MONTH.)

EARLY LIFE.

Birth—time and place.

Parentage.

Character of parents.

Education—direction.

MANHOOD.

Profession.

Visit to Europe.

Condition of the country at the time.

Desire of the south for the annexation of Texas—cause.

Member of U. S. Senate.

Elected on what issue.

Kansas and Nebraska Bill.

Formation of new parties—Republican.

Assault on Mr. Sumner.

John Brown's raid.

Condition of parties in 1860 and principles of each party.

Stand taken by Sumner on the questions of the day.

Emancipation Proclamation.

Close of the war.

Formation of the Liberal Party.

Death—when, where.

Character—writings.

Classify the biographies already learned to get the four periods of U. S. History:—

Discoveries.

Revolution.

Settlements.

The Administrations.

THIRD SERIES.

NINTH GRADE.

(FOUR MONTHS.)

1. Review the biographies belonging to the period of discoveries, and classify them according to nationality:—

1. Spanish, 2. English, 3. French, 4. Dutch.

2. Review the biography of Columbus; then, in the order enumerated, give brief biographies of the following Spanish discoverers:—

1. DeLeon, 2. Balboa, 3. Cordova, 4. Cortez,
5. D'Ayllon, 6. Narvaez, 7. Pizarro, 8. Melendez.

Let each biography include only the nativity and general character of the person, and the motives which led to his discoveries.

Locate the countries discovered; compare present and original boundaries; give the time of each discovery; the result to the discoverer and to the world.

3. Review the biographies of the Cabots; then, in the order enumerated, give the following English discoverers:—

1. Sir Francis Drake. 2. Sir Humphrey Gilbert. 3. Bartholomew Gosnold.

4. Review the biographies of Cartier and Champlain; then, in the order given below, give brief biographies of

Verazzani, Coligny, Sieur de Mont.

5. Review the biography of Hudson, and give in addition the extent and result of discoveries and explorations in America authorized by Holland.

Give French succession from 1492 to 1600.

CROSS SECTION WORK.

Review discoveries in chronological order.

Let pupils show, by aid of maps, the territory claimed by each nation at the close of the 16th century.

Have pupils read the following articles:

The first voyage of Columbus, Joanna Baillie.

The Landing of Columbus, Robertson.

Maritime Enterprise in the 15th century, Prescott.

The Discovery of Florida, Bancroft.

The Discovery of the Pacific, Irving.

The Boldness of Cortez, Prescott.

The Expedition of DeSoto, Parkman.

The Discovery of Lake Champlain, Parkman.

Have pupils learn the nationality of each of the above named authors, and the titles of the works from which these selections are taken.

6. Review the biographies belonging to the period of settlements.

Give biographies of

Captain Mason,

John Winthrop,

Peter Minuits,

Lord Clarendon,

Let each biography include only the naivety and the general character of the person; his object in founding a colony; from whom he obtained his grant; and the character of the government he established in the settlement.

Locate each settlement in time and place, and give character of settlers.

7. Classify the settlements according to the motives which led to them:

To escape religious persecution.

For commercial gain.

For territorial acquisition.

8. Compare the different forms of government found in the thirteen original colonies, and classify the colonies accordingly:

Provincial.

Proprietary.

Charter.

Define each of these forms.

Give a brief biography of Oliver Cromwell, which shall show how he became Lord Protector; when, why and by whom the Navigation Acts were passed; the result of the interference of his Parliament in the government of Maryland; how long his supremacy in England lasted; and who succeeded him as ruler.

Give brief sketch of Gov. Berkely, which shall include only the character of the man; the name of the monarch under whom he served; the office he held in America; the various measures by which he oppressed the colonists; the history of *Bacon's Rebellion*, and the date and reason of his recall by the king.

Give biography of Sir Edmund Andros, which shall include only the following points: the nativity and general character of the man; the cause of his appointment as governor of New England; the name of monarch appointing him; the incident of the "Charter Oak;" the duration of his administration; and the cause of its termination.

Compare the colonies with regard to growth; give causes for prosperity and reverses, and enumerate the various troubles which beset the colonists:

Unwise Legislation.

Dissolute character of settlers.

Indian wars.

Colonial wars.

Have pupils give duration and locality of the *Pequod War* and of *King Philip's War*.

Have pupils learn the causes, duration and result of each of the colonial wars; also, the location of the cities at which the first treaties were signed.

7. Give the succession to the English throne from 1600 to 1765, with causes of the changes.

CROSS-SECTION WORK.

1. Review in chronological order the settlements, giving location of each, from Jamestown, in 1607, to Savannah, in 1733.

2. Review in chronological order, the principal events from 1607 to 1765.

3. Review the noted men of the colonies, locating them in time and place, and connecting them with the events that made them famous.

Have pupils read the following articles:

The Settlement of Jamestown, Grahame.

The Settlement of Plymouth, Palfrey.

Roger Williams, Bancroft.

Conquest of the New Netherlands by the English, Brodhead.

Elliot, the Indian Missionary, Grahame.

Death and Character of King Philip, Irving.

Coinage in Massachusetts, Everett.

Witchcraft in Massachusetts, Everett.

Character of Peter Stuyvesant, Irving.

Have pupils learn the nationality of each of the above-named writers, and the titles of the works from which the above articles are taken.

Have pupils learn selections from the following poems:—

Pocahontas, Mrs. Hemans.

Landing of the Pilgrims, Southey.

The Pilgrim Fathers, Pierpont.

The Indian Hunter, Longfellow.

(TWO MONTHS.)

Review the biographies belonging to the Revolutionary period, and classify them as statesmen and military characters.

Review the biography of Patrick Henry, (Read his speech in the House of Burgesses), giving especial attention to that part of his life connected with the First Continental Congress. By this review have pupils learn the events which led to the assembling of Congress, as well as the important business transacted by it.

Give biography of John Hancock. Let this biography include the following points: nativity, character, whom he succeeded as President of Congress; the causes which led to the assembling of this congress; the duration of this congress; the important business transacted at each session. (Commit *The Declaration of Independence*, and *Supposed Speech of Mr. Adams*.) State what office he held after the war; how long he held this office, and the time of his death.

Review the biography of Washington; then give a brief biography of each of the following Revolutionary officers:

Paul Jones,	Gates,	La Fayette,	Greene,
D'Estaing,	Morgan,	DeGrasse,	Marion,
Pulaski,	Moultrie,	Sullivan,	Arnold,
Sumter.			

Let each biography include only the nationality of the officer; the time and place of his operations; the names of noted officers assisting him; the names of opposing officers; the location and result of the most important battles, and the result of the campaigns in which he was engaged.

CROSS-SECTION WORK.

1. Review in chronological order the battles named in the biographies, giving location of each and names of opposing officers.

2. Classify the battles named, as victories and reverses for the Americans.

3. Review in chronological order all the important events, legislative and military, transpiring from 1765 to 1783.

Have the pupils learn selections from the following poems:

Paul Revere's Ride, Longfellow.

Battle of Lexington, Holmes.

Warren's Address, Pierpont.

Andre's Request, Willis.

Independence Bell, Anonymous.

Song of Marion's Men, Bryant.

Have pupils read articles from Bancroft, Irving and Headly, which have a bearing on the work.

(FOUR MONTHS.)

Review the biography of Washington, giving especial attention to that part of his life which is connected with the foundation of the government; state the defects found in the *Articles of Confederation*. Give in full the constitution of the United States. Give the departments represented in Washington's Cabinet, with names of Secretaries, and compare with present Cabinet. Give states admitted during his administration.

Review John Adams's biography; then, in addition to what has been learned, give brief history of the French Revolution from 1790 to 1800; the history of Jay's treaty; the various hostile acts committed by France and America, and the termination of these hostilities.

Give brief biography of Aaron Burr. Show by means of this biography the rise of political parties in the United States.

Give the biography of each of the Presidents. Let each biography include only the following points:

Nationality; character; politics; important state offices held; by what party elected president; the particular point at issue between the two parties; duration of administration; the principal events occurring, with causes and results; the names of the most prominent statesmen assisting and opposing the administration, and the time of retirement from office.

CROSS-SECTION WORK.

1. Have pupils name the Presidents in order, giving duration of office in each case.

2. Review the different wars in which the Republic has been engaged—stating causes and results of each.

3. Review the politics of the nation—showing the changes

in the different parties; the causes of these changes, and the names of the political leaders.

4. Have pupils state what territory has been acquired since the formation of the government.

5. Have pupils give the boundaries of the United States at various periods since 1783.

Review in chronological order the important events of this period, and classify them as Legislative, Scientific, and Military. Give names of men connected with each event.

Have pupils read speeches made by the following statesmen:

Webster, Calhoun, Clay, Sumner, Benton,
Everett, Seward, Douglas, Lincoln, Alex. Stephens.

Have pupils read and learn selections from the following poems:

The Launching of the Ship, Longfellow.

The Star-Spangled Banner, Key.

The Angels of Buena Vista, Whittier.

Barbara Frietchie, Whittier.

Not on the Battle Field, Pierpont.

Sheridan's Ride, Read.

The Rebel Guard, Mrs. Beers.

Civil War, Anonymous.



 LANTS.

FIRST SERIES.

FIRST GRADE.

This work should not be taught without specimens, in illustration, on the desk of each pupil. One or two specimens in the hands of the teacher is not enough. Facts are to be obtained by discovery and experiments; these depend upon observation and experience. It will be better to omit the work altogether than to dictate it; more profitable employment can be found for both teacher and pupil. Definitions are to be developed, after which the pupils should commit them to memory.

(FIVE WEEKS.)

I. Parts.

1. LEAVES. 2. STEMS. 3. ROOTS.

II. Organs of Vegetation.

1. LEAVES:—

(a) *Parts*—blade, footstalk or petiole;(b) *Shape*—base, apex, margin; general form;

(Lead pupils to state differences of shapes without giving scientific terms; also, that margins are entire or cut.)

(c) *Composition*—woody material, pulpy matter;(d) *Uses*—ornament, shade.

2. STEMS:—(Two weeks.)

(a) *Kinds*,—

(1) Nature—woody, herbaceous,

(2) Growth—erect, running, climbing.

3. ROOTS:—(Three weeks, including a review.)

(a) *Kinds*,—

(1) Nature—fibrous, fleshy.

(Teach forms of fleshy roots without giving scientific terms.)

(b) *Uses*—to fasten plants firmly in the ground ; to take in nourishment; for food.~~~~~
SECOND GRADE.

III. Organs of Reproduction.

1. FLOWERS:—(Four weeks, including a review.)

(a) *Parts*,—(See Plan IX, Appendix.)

(1) Calyx—sepals,

(2) Corolla—petals,

(3) Stamens,

(4) Pistil ovary.

(Call attention first to a monopetalous corolla, then to a lobed monopetalous, and then to a polypetalous. Teach that the parts are called petals.

Develop the idea and teach that the corolla is sometimes wanting.

Follow the same plan with calyx.

Teach what is called the ovary, and what it contains.)

(b) *Arrangement*—solitary, clustered.

2. FRUIT:—(Four weeks.)

(a) *Kinds*,—

(1) Fleshy—berry, pepo, pome,

(Compare berries with gourd fruit.

Compare pome fruit with berry and gourd fruit.

Give the use of each.)

(2) Stone—drupe,

{Compare stone fruit with fleshy fruit.

Give use.)

(3) Dry—pods, nuts, grain.

(Develop the idea that some dry fruits when ripe split and let the seeds fall out, others do not.)

Give examples of each. Have pupils name the different kinds of grain and nuts.

Compare dry fruit with stone and fleshy fruit. Lead pupils to state differences.)

3. SEED:—(One week.)

(a) *Parts*,—(See Plan X, Appendix.)

(1) Coats—use,

(2) Kernel—embryo, albumen.

(Develop the idea that a little plant is like an infant and cannot support itself.

Develop the idea that the food is stored in the kernel to nourish the plantlet.)

(b) *Uses*,—

(1) Food, (2) Propagation of plants.

4. BUDS:—(One week.)

(a) *Kinds*—flower-buds, stem-buds, leaf-buds.

(b) *Uses*,—

(1) Growth of plants,

(2) Propagation of plants—slips, grafts, layers, tubers, bulbs.

(Call attention particularly to the potato.

Show that budless branches will not grow.

Teach what bulbs are.)

THIRD GRADE.

(TEN WEEKS, INCLUDING A REVIEW.)

IV. Nutrition.

1. ABSORPTION:—

(a) *How*; (b) *Why*.

2. CIRCULATION:—

(a) *Of what*; (b) *Use*.

V. Kinds.

1. STRUCTURE:—

(a) *Herbs*; (b) *Shrubs*; (c) *Trees*.

2. DURATION:—

(a) *Annuals*; (b) *Biennials*; (c) *Perennials*.

VI. Uses.

1. FOOD:—

(Name plants of which the roots are eaten; also, those of which the stem, the leaves, the seeds, the bark or the flowers or buds are eaten.)

Give object lessons on the different garden vegetables and fruits. Teach what parts are eaten and the kind of fruit borne by each, and correct erroneous ideas in regard to sweet and Irish potatoes.

Give lessons on the process of sugar and molasses making.

Give lessons on the process of starch making naming kinds and brands.

Give object lessons on wheat and corn. Teach whether planted or sown and how; how cultivated and their uses.

Give object lessons on the process of flour making naming kinds and brands.)

2. CLOTHING. (Name plants used.)

(Give object lessons on cotton and flax, telling what they are, where found, how used, and a general view of the process of manufacture.)

Give short object lessons on silk and wool in comparison with the above.)

3. MEDICINE. (Name plants used.)

4. BUILDING MATERIAL AND UTENSILS. (Name plants used.)

5. FUEL. (Name plants used.)

6. ORNAMENTATION. (Name plants used.)

VII. Analysis.

1. Morning Glory.

2. Rose Family.

3. Spring Beauty.

4. Marsh Marigold.

5. Mustard.

Teach pupils to recognize and name plants and describe as far as their knowledge will allow.

Form suggested.

Morning Glory—Annual; hairy stems; entire leaves; flowers three to five; flowers pink, purple or white, opening in the morning and closing in bright sunshine.

SECOND SERIES.

FOURTH GRADE.

(THREE MONTHS).

1. Organs of Vegetation.

7. LEAVES:—

(a) *Kinds* according to Venation—net-veined, parallel-veined;

(b) *Kinds* according to form:—

(1) Entire leaf—linear, lanceolate, oblong, oval, round, oblanceolate, spatulate, wedge-shaped,—

(2) Base—cordate, reniform, auriculate, peltate,—

(3) Apex—pointed, acute, obtuse, truncate, retuse, notched,—

(4) Margin—(a) entire, (b) toothed—serrate, dentate, crenate,—(c) wavy, (d) sinuate, (e) jagged;

(c) *Kinds* according to nature;—

(1) Compound—pinnately, palmately,—

(2) Simple—whole, cleft;

(d) *Arrangement*—alternate, opposite, whorled;

(e) *Composition*—(Review First Series—give ideas, definitions and terms);

(f) *Use*—absorption.

FIFTH GRADE.

(THREE MONTHS).

2. STEMS:—

- (a) *Kinds* according to nature—herbaceous, shrubby ;
- (b) *Kinds* according to growth—(Review First Series) ;
- (c) *Kinds* according to structure—exogenous, endogenous ;
- (d) *Forms*—round, square, triangular ;
- (e) *Different Developments*—spine tendril, peduncle, stolon, runner, sucker, offset, root, stalk ;
- (f) *Composition*—cellular tissue, woody material ;
- (g) *Arrangement*—alternate, opposite, whorled.

3. ROOTS:—

- (a) *Kinds*:—
 - (1) Fleshy,—(a) single—tap. conical, turnip-shaped, spindle-shaped,—(b) clustered,—
 - (2) Fibrous ;
- (b) *Uses* of both fleshy and fibrous roots ;
- (c) *Rank*—primary, secondary.

SIXTH GRADE.

(THREE MONTHS).

II. Organs of Reproduction.

1. FLOWERS:—

- (a) *Parts* ;—(1) essential—stamens, pistils, — (2) non-essential—calyx (sepals), corolla (petals) ;
- (b) *Kinds* according to essential parts—perfect, imperfect ;
- (c) *Kinds* according to all parts—complete, incomplete ;
- (d) *Kinds* according to number of parts—symmetrical, unsymmetrical ;
- (e) *Condition of floral envelopes* ;—
 - (1) Corolla,—(a) monopetalous—trumpet-shaped, funnel-shaped, rotate, labiate,—(b) polypetalous—petals ;

(2) Calyx, (*a*) monosepalous, (*b*) polysepalous;

(*f*) *Condition of essential parts*;—

(1) Stamens,—(*a*) parts—filament, anther,—(*b*) arrangement of parts—filaments united, anthers united,—

(2) Pistils,—(*a*) parts—ovary, style, stigma,—(*b*) arrangement of parts—ovaries united, styles united, stigmas united;

(*g*) *Arrangement*;—

(1) Solitary,—

(2) Clustered,—raceme, corymb, umbel, head, spike, panicle, fascicle.

Give terms *alternate* and *opposite* as applied to *flowers*.

SEVENTH GRADE.

(THREE MONTHS.)

2. SEEDS:—

(*a*) *Parts*,—(1) coats, (2) kernel,—(*aa*) embryo—radical, seed-leaves,—(*bb*) albumen;

(*b*) *Location*—in ovary;

(*c*) *Use*—reproduction of plant.

3. BUDS—(Review First Series.)

4. FRUIT:—

(*a*) *Simple*,—(1) fleshy fruit—berry, pepo, pome,—(2) stone fruit—drupe,—(3) dry fruit—(*aa*) dehiscent,—(*aaa*) simple—follicle, legume,—(*bbb*) compound—capsule, silique, pyxie,—(*bb*) indehiscent.

(*b*) *Compound*—aggregate, accessory, multiple.

Analyze the flowers named in the orders enumerated below. Drill upon each order until the pupils are able to recognize plants of that order at sight.

CROWFOOT. (*Ranunculaceae*.)

Anemone, Crowfoot, Buttercup, Larkspur, Peony, Meadow-Rue, Columbine, Monkshood.

ROSE. (*Rosaceae*.)

Peach, Pear, Apple, Cherry, Strawberry, Raspberry, Rose.

GOURD. (*Cucurbitaceae*.)*Squash, Pumpkin, Cucumber, Water-melon.*CRESS. (*Cruciferae*.)*Radish, Turnip, Mustard, Water-cress.*LILY. (*Liliaceae*.)*Lily, Tulip, Onion, Hyacinth. Lily of the Valley, Solomon's Seal.*PULSE. (*Leguminosae*.)*Locust-tree, Clover, Bean, Pea.*BELL-FLOWER. (*Campanulaceae*.)VIOLET. (*Violaceae*.)*Violet, Pansy.*PRIMROSE. (*Primulaceae*.)*Cowslip, Primrose.*

EIGHTH GRADE.

(THREE MONTHS.)

CONVOLVULUS. (*Convolvulaceae*.)*Morning Glory, Potato, Tomato.*POLEMONIUM. (*Polemoniaceae*.)*Phlox.*VERVAIN. (*Verbenaceae*.)*Verbena.*CURRANT. (*Grossulaceae*.)*Currant. Gooseberry.*COMPOSITE. (*Compositae*.)*Dandelion, Lettuce, Sunflower, Aster.***III. Nutrition.**1. ABSORPTION ;—(a) *by what.* (b) *of what.*2. CIRCULATION :—(b) *of what.* (b) *where.***IV. Kinds.**1. ACCORDING TO STRUCTURE—*herbs, shrubs, trees.*2. ACCORDING TO DURATION—*annuals, biennials, perennials.***V. Classes.**

1. PHÆNOGAMOUS :—

(a) *Exogens*;—

(1) Angiospermous — polypetalous, monopetalous, apetalous,—(2) Gymnospermous.

(b) *Endogens.*

2. CRYPTOGAMOUS.

VI. Uses.

(Review uses given in first series.)

1. To TAKE IN CARBONIC ACID.
2. To PRODUCE OXYGEN.

NINTH GRADE.

(THREE MONTHS.)

Classify according to growth the plants previously studied.

Teach pupils to recognize and classify the following forest trees, also teach their general contour, description of their leaves and flowers, their geographical distribution and kinds and uses of woods.

Oak, Maple, Cottonwood, Basswood, Hickory, Arbor-Vitae, Pine, Chestnut, Willow, Butternut, Elm, Walnut, Poplar.

GRASSES. (Graminae.)

Teach the general characteristics of this order.

Teach the pupils to recognize and classify the following plants, giving as much general information as possible, as commercial value and geographical distribution.

Wheat, Rye, Oats, Barley, Corn, Sugar Cane.

By comparing, distinguish grasses from canes; grasses proper from cereals; the different cereals from each other.

Teach pupils what *mosses, ferns* and *lichens* are.

Have pupils classify them.

THIRD SERIES.

HIGH SCHOOL.

(THREE MONTHS.)

Review second series.

Teach anatomy of plants, exhausting the structure of each part.

Teach physiology of plant life, dwelling at length upon *fertilization, absorption, circulation and respiration.*

Give uses and commercial value of plants.

Teach reason for rotation of crops.

Teach use of the key.

Have pupils analyze many plants.





N I M A L S .

FIRST SERIES.

FIRST GRADE.

RUMINANTS.

Whenever it is possible, as it is in most cases present the animal to the pupils for study. When this is not possible or practicable, a good picture of the animal to be studied should be procured, and when possible, such parts of the animal as are interesting and necessary to a proper classification, such as hoofs, horns, teeth, *vertebrae*, etc. Without some or all of these, no lesson should be attempted. Mere dictation work is profitless.

Principals will make requisitions upon the high school cabinet and furnish teachers with all needful appliances.

THE COW. (TWO WEEKS.)

Parts:— [See Plan XI, Appendix.]

Large, broad head; large body covered with hair; short legs; feet divided or cloven; short, thick neck from which hangs a broad piece of skin called a dewlap.

Hollow horns; broad, naked muzzle; no front teeth in the upper jaw; large front teeth in the lower jaw; back teeth in both jaws, large and broad; long, rough tongue.

(Pupils should be able to name any part not mentioned above.)

Habits:—

Eats corn, hay, grass, roots, etc., (vegetable food.)

Uses its long tongue in obtaining food.

Is slow in movement and kind in disposition. Chews the cud.

Uses:—

Alive—Work; milk (butter and cheese.)

Dead—Flesh (beef); skin (leather); hair (mortar).

Miscellaneous:—

Name of male, female, young.

Name of flesh of young.

THE SHEEP. (FOUR LESSONS.)

Parts:—

Small head; small body covered with wool; slender legs; pointed muzzle.

For horns, teeth, tongue and feet, see Parts of the cow.

Habits:—

See Habits of the cow. Quick in movement.

Uses:—

Alive—Wool (clothing.)

Dead—Flesh (mutton); skin (leather).

Miscellaneous:—

See work on cow.

THE GOAT. (FOUR LESSONS.)

Parts:—

Long, narrow head; slender body covered with hair; long hair on chin, called beard.

For horns, teeth, tongue, legs and feet, see work on cow.

Habits:—

See Habits of sheep.

Uses:—

Alive—Hair (clothing); milk (food).

Dead—Flesh (food); skin (leather).

Miscellaneous:—

See work on cow.

THE DEER. (THREE LESSONS.)

Parts:—

Small, pointed head; slender body covered with hair; long, slender legs; solid horns; naked, pointed muzzle.

See Parts of cow for teeth and feet.

Habits:—

See work on cow. Moves by leaps or jumps.

Uses:—

Alive—Labor (sometimes); milk (sometimes).

Dead—Flesh (food); skin (leather).

Miscellaneous:—

See work on cow. Name of flesh. Is found wild and is easily tamed.

THE CAMEL. (FOUR LESSONS.)

Parts:—

Small head ; large, ill-shaped body ; one or two humps on back ; long legs ; feet broad and padded, each having two large nails (cloven feet). No horns ; naked muzzle ; front teeth in both jaws ; for back teeth and tongue, see Parts of the cow.

Habits:—

See work on cow. Can do without water many days.

Uses:—

Alive—Carrying merchandise in desert countries. Hair for clothing.

COMPARISONS. (ONE WEEK.)

Parts:—

All have naked muzzles ; broad back teeth in both jaws ; long, rough tongues ; cloven feet.

The cow, sheep, and goat have hollow horns.

The deer has solid horns. The camel has no horns.

The cow, sheep, goat, and deer have no front teeth in the upper jaw.

The camel has front teeth in the upper jaw.

The cow, goat, deer and camel are covered with hair.

The sheep is covered with wool.

Habits:—

All eat vegetable food.

All chew the cud.

Uses:—

All are useful.

Skins of all are used for leather.

Cow and goat furnish milk.

Cow, deer and sheep furnish flesh for food.

Sheep, goat and camel furnish material for clothing.

NON-RUMINANTS.

THE HORSE. (ONE WEEK.)

Parts:—

Long, slim head ; slender neck ; slender body covered with hair ; long, slender legs covered with hair.

Front teeth in both jaws ; large, broad back teeth ; slender lips ; long hair on neck called a mane.

Habits:—

Eats vegetable food ; does not chew the cud ; quick and active.

Uses:—

Alive—Work ; pleasure.

Dead—Skin (leather).

Miscellaneous:—

Names of male, female and young.

The horse is beautiful and graceful.

Smallest horses called Shetland ponies.

THE HOG. ONE WEEK.

Parts:—

Large, pointed head ; short, thick neck ; heavy body covered with hair called bristles, short, slender legs and cloven feet.

Truncated snout ; front teeth in both jaws ; lower front teeth incline forward ; broad back teeth ; hind toe present and elevated.

Habits :—

Eats vegetable food ; does not chew the cud ; wallows in the mud ; is dirty.

Uses :—

Flesh (food) ; fat (lard) ; hair.

Miscellaneous :—

Names of male, female and young. Name of flesh.

The wild hog is very fierce.

THE ELEPHANT. ONE WEEK.

Parts :—

Short head ; short, thick neck ; heavy, awkward body covered with a thick and nearly naked skin ; feet divided into toes.

Long snout called the trunk ; long, heavy tusks ; no front teeth in lower jaw ; large, broad back teeth ; thick, clumsy lips.

Habits :—

Eats vegetable food ; does not chew the cud ; gets its food with its trunk.

Uses:—

Labor ; pleasure ; tusks (ivory).

Miscellaneous :—

The elephant is found wild ; can be tamed ; is interesting, wise and cunning.

Name of young. Largest land animal.

COMPARISONS. (ONE WEEK.)

All have large, broad back teeth.

The horse has a long, slim head, the hog a large, pointed head and the elephant a large, short head.

The horse and hog have front teeth in both jaws, the elephant has no front teeth in the lower jaw.

The horse has entire feet ; the hog has cloven feet and the elephant's feet are divided into toes.

The horse and the hog are covered with hair. The skin of the elephant is nearly naked.

All eat vegetable food. (How obtained.)

CARNIVORA.

THE CAT. (SEVEN LESSONS.)

Parts:—

Broad head ; short neck ; well-shaped body covered with soft hair called fur ; short legs ; five toes on each fore foot ; four toes on each hind foot ;

Front teeth in both jaws, sharp and long, fitted for tearing ; sharp, uneven, back teeth fitted for cutting ; long, rough tongue ; long, sharp, curved, retractile claw on each toe ; a soft pad under the middle of each foot, and one under each toe.

Habits :—

Sly, quick, sees at night ; eats animal food ; gets food by watching for and springing upon it.

Uses :—

Catching mice ; fur ; skin.

Miscellaneous :—

Domestic. Ferocious and dangerous when found wild.

Name of young. Story of kittens.

THE DOG. (ONE WEEK.)

Parts :—

Head not large; well-shaped body covered with hair; long legs; four toes on each foot.

(For teeth, see Parts of the cat); soft tongue; long, sharp, curved claw on each toe, not retractile; thumb or small toe on each fore foot, elevated.

Habits :—

Eats animal food; gets food by chasing or running it down.

Hearing and smell acute; kind and teachable.

Uses :—

Watching, hunting; work (sometimes); fur; skin.

Miscellaneous :—

Name of old and young.

Names of different kinds of dogs commonly known.

THE BEAR. (ONE WEEK.)

Parts :—

Large, broad head; strong neck; large, clumsy body covered with hair; short, strong legs; five toes on each foot, pointing forward.

Pointed muzzle; front teeth in both jaws, sharp and long fitted for tearing; back teeth flat and broad; long tongue; long, sharp, curved claw on each toe, not retractile.

Habits :—

Eats animal and vegetable food.

Nocturnal; climbs.

Uses :—

Flesh (food); fat; skin.

Miscellaneous :—

Called bruin. Why. Name of young. Defends itself with its fore paws.

COMPARISONS. (THREE LESSONS.)

All have sharp, pointed front teeth in both jaws fitted for tearing.

Cat and dog have sharp, uneven, back teeth fitted for cutting; bear has broad, flat, back teeth.

The cat has five toes in front and four behind. The dog has four toes on each foot. The bear has five toes on each foot.

The cat has retractile claws; the dog and bear have non-retractile claws.

All eat animal food. The bear eats vegetable food also.

SECOND GRADE.

RODENTS.

THE SQUIRREL. (SIX LESSONS.)

Parts:—

Round head; slim, beautiful body covered with fur; long, bushy tail; slim legs; four toes on each fore foot; five toes on each hind foot.

Divided lip; two long, sharp, chisel-shaped front teeth in each jaw; broad, rough, back teeth; a long, sharp, curved claw on each toe.

Habits:—

Eats vegetable food; gnaws; lives in trees or burrows in the ground; makes nests of leaves and sticks; sits on its haunches; holds its food with its fore paws—inner toe serving as a thumb.

Uses:—

Flesh (food); fur.

Miscellaneous:—

Easily tamed; cunning. Look up meaning of word *Squirrel*.

THE RABBIT. (FOUR LESSONS.)

Parts:—

Small, pointed head; slim body; short tail; fore legs shorter than hind legs; five toes on each fore foot; four toes on each hind foot.

Long, pointed ears; (for teeth, see Parts of the squirrel); soles covered with hair.

Habits:—

Eats vegetable food; gnaws; burrows in the ground; moves by leaps or jumps; is timid; quick.

Uses:—

Fur; flesh.

Miscellaneous:—

Swift; graceful; sometimes tamed.

THE BEAVER. (THREE LESSONS.)

Parts:—

Flat head ; long, heavy body ; broad, flat, scaly tail ; fore legs shorter than hind legs ; five toes on each foot ; toes on hind feet webbed.

Ears small ; (for teeth, see Parts of the squirrel).

Habits:—

Eats vegetable food ; gnaws ; frequents water ; is cunning ; intelligent.

Uses:—

Fur.

Miscellaneous:—

Builds dams ; gnaws down trees ; makes two story houses with lower story under water.

THE RAT. (THREE LESSONS.)

Parts:—

Pointed head ; long body ; long, slim, naked tail ; medium-sized legs ; four toes on each fore foot ; five toes on each hind foot.

Short, round ears ; (for teeth, see Parts of the squirrel).

Habits:—

Eats vegetable and animal food ; gnaws ; burrows in the ground ; climbs.

Uses:—

Skin (gloves).

Miscellaneous:—

Ferocious ; troublesome ; inhabits the home of man.

COMPARISONS. (FOUR LESSONS.)

Parts:—

All have long, sharp, chisel-shaped front teeth ; broad, rough, back teeth ; long bodies.

The squirrel, beaver and rat have long tails. The tail of the first is bushy ; that of the second is flat and scaly ; that of the third is long, slim and naked. The rabbit has a short tail.

The beaver and rabbit have shorter legs in front than behind.

The squirrel and rat have four toes on each fore foot and five on each hind foot. The rabbit has five toes in front and four behind. The beaver has five toes on each foot—hind toes webbed.

All eat vegetable food. Rats eat animal food. All gnaw; all burrow.

BIRDS.

THE DUCK OR GOOSE. (EIGHT LESSONS).

Parts:—

Narrow head; short, slender neck; boat-shaped body covered with soft, downy feathers; two short legs placed far back and far apart; three toes in front and one behind—front toes webbed.

Broad, flat bill covered with a skin (note the edges); medium-sized wings; short tail.

Teach names of the different parts—nape, crown, forehead, nostrils, mandibles, gape, throat; primaries, secondaries, coverts (wing and tail); tibia, tarsi, inner toe, outer toe (exterior), middle toe, thumb.

Habits:—

Eats grain, grass, and small animals which it obtains from the water and mud with its long, broad bill; swims and dives; is awkward in walking (why); does not fly well; lays eggs; is a swimmer.

Uses:—

Flesh; eggs; feathers; quills.

Miscellaneous:—

Names of old and young.

Wild and domestic.

THE HERON, CRANE OR SNIPE. (THREE LESSONS.)

Parts:—

Small head; slender neck; slender body covered with feathers; two long, slim legs; slim toes united at base; long claws.

Long, slender bill; small wings; short tail; tarsi naked.

Habits:—

Frequents wet places; loves water; feeds on insects, fish and grain; uses its bill in obtaining fish from the water; lays eggs; is a wader.

Uses:—

Flesh (food).

Miscellaneous:—

Wild.

THE TURKEY OR PRAIRIE CHICKEN. (FOUR LESSONS).

Parts:—

Small head; strong neck; large, heavy body covered with feathers; two medium-sized legs; three toes in front and one behind slightly elevated.

Short, thick bill, stout and curved; short, weak wings; broad, round tail; strong, curved claws on each toe.

Habits:—

Frequents dry localities; seeks food on the ground; eats grain and insects; scratches; seldom flies; lays eggs.

Uses:—

Flesh; eggs (food); feathers.

Miscellaneous:—

Wild and domestic.

Name of young.

THE EAGLE. (FOUR LESSONS).

Parts:—

Large, flat head; short, thick neck; stout body covered with feathers; two short, strong legs; three toes in front, one behind, all on a level.

Strong, thick, hooked bill; strong, broad, long wings; broad, heavy tail; tarsi frequently covered; strong, thick, hooked claws.

Habits:—

Lives in mountainous districts; feeds on rats, rabbits and other small animals.

Seizes its prey with its strong claws and tears it with its bill; flies easily very high; lays eggs.

Miscellaneous:—

Name of young. Lives many years; Country's emblem.

THE ROBIN. (TWO LESSONS.)

Parts:—

Medium-sized head ; short neck ; medium-sized body ; two slender legs ; toes long, slim, and on a level—three in front and one behind.

Strong, conical bill ; short wings ; broad tail ; long, slim, curved claws.

Habits:—

Lives mostly in trees ; eats insects, fruits and grains ; perches ; lays eggs.

Uses :—

Destroying insects ; pleasure.

Miscellaneous :—

First bird in Spring. Builds nests in trees near the habitation of man.

COMPARISONS. (THREE LESSONS.)

All have mouths prolonged into a hard beak or bill, the bodies of all are covered with feathers. All have wings, and tails.

All lay eggs.

The duck, heron and turkey live most of the time upon the ground.

The duck and heron are frequently found in the water.

The eagle and the robin live most of the time among trees.

The duck swims and hunts in the water for food, and is called a swimmer.

The heron wades in search of food, and is called a wader.

The turkey scratches on the ground in search of food, and is called a scratcher.

The eagle seizes his food with his strong claws and tears it with his powerful bill, and is called a bird of prey.

The robin is found perching upon trees, and is called a percher.

REPTILES.

THE TURTLE. (FIVE LESSONS.)

Parts:—

Broad, flat head; body protected on upper and lower sides by horny plates, upper one rounded, called *carapace*, lower one flat, called *plastron*; short, conical, retractile tail; short, thick, retractile legs, five toes on fore feet and four on hind, armed with sharp, curved, bony claws directed forward.

Large eyes; thick, retractile neck.

Habits:—

Found in water and marshy places; eats insects, worms and small fishes.

Swims and dives; moves slowly and awkwardly on the ground; lays eggs.

Uses:—

Food (sometimes); shells are useful.

Miscellaneous:—

Eggs are hatched by the heat of the sun. Let pupils name the kinds of turtles they have seen.

THE SNAKE. (THREE LESSONS.)

Parts:—

Small, flat head covered with scales; long, round, tapering, flexible body covered with scales above and plates below; pointed tail; no legs or feet.

Small eyes; broad mouth; no neck.

Habits:—

Found on ground in dry or wet places; feeds on insects and other small animals.

Lays eggs; creeps; can swim; sheds its covering annually.

Uses:—

Flesh (sometimes).

Miscellaneous:—

Very numerous. Eggs are hatched by the heat of the sun. Few snakes are dangerous. Let pupils name different snakes known to them.

COMPARISONS.

Both have flat heads and broad mouths. The snake is covered with scales; the turtle is covered with plates. The turtle has four legs and feet; the snake has no legs or feet.

AMPHIBIANS.

THE FROG. (THREE LESSONS.)

Parts:—

Large, flat head; short, thick neck; broad, short, ill-shaped body covered with a loose, smooth skin; four legs; hind legs longer and stronger than fore legs; four toes on each fore foot; five toes on each hind foot, armed with claws and partially webbed.

Large prominent eyes; wide mouth; movable lips; no tail.

Habits:—

Frequents wet, marshy places; eats worms, shell fish and insects; lays eggs in water; swims; leaps.

Uses:—

The flesh is used for food.

Useful in destroying injurious insects.

Miscellaneous:—

Name of young. Found in all countries.

THIRD GRADE.

FISHES. (ONE WEEK.)

Parts:—

Large head; long body tapering to the tail and covered with scales; flat tail; fins.

Fixed, bright eyes; large mouth furnished with teeth; no neck; gills; fins—pectoral, ventral, dorsal, and caudal.

Teach names and position of each.

Habits:—

Lives in the water; feeds on small fishes and other small

animals; lays eggs; uses fins to aid in swimming; uses tail to guide itself (rudder).

Uses :—

Food; pleasure.

Miscellaneous :—

Let pupils name different kinds of fishes, and different ways of catching them.

ARTICULATES.

THE BUTTERFLY. (ONE WEEK.)

Parts :—

Head; thorax; abdomen; body made up of rings; six legs attached to thorax.

Antennae; beautiful wings.

Habits :—

Flies; feeds upon honey found in flowers; lays eggs.

THE LOBSTER OR CRAB.

Parts :—

Head small; thorax hard; abdomen long; body made up of rings; limbs long; fore limbs armed with claws.

Eyes protrude.

Habits :—

Lives in water; lays eggs.

COMPARISONS.

Both have bodies made up of rings.

The lobster's fore limbs are armed with claws; the butterfly's are not.

Both lay eggs.

Young of both are unlike the old.

The butterfly is found among flowers; the lobster lives in the water.

MOLLUSKS.

THE SNAIL. (TWO LESSONS.)

Parts :—

Soft, pulpy body.

Lives in shelly covering.

The shell is composed of whorls that form a spire. The point at the top is called the apex. The opening at the bottom is called the aperture.

THE OYSTER OR CLAM.

Parts:—

Body soft and pulpy.

COMPARISONS.

Both have soft, pulpy bodies.

Both live in shells.

THE ENTIRE SERIES REVIEWED. (ONE WEEK.)

1. Some of these animals lay eggs; some do not.
2. Some are hatched from eggs, and some are born alive.
3. Show that, of the animals born alive, some eat vegetable food, others eat animal food, and all have warm blood.
4. Show that some of the animals hatched from eggs, as soon as hatched, resemble the old; that others do not.
5. Show that some have warm blood, others have cold blood..
6. Some are covered with feathers, some with scales, some with shells, and some with hair, while some have naked skins.
7. Some live in the water, others live on land; others live both on land and in water.
8. Some have an internal skeleton and back bone; some have not.

SECOND SERIES.

Pupils should be required, at first, to study type animals only. After the type has been studied, kindred animals should be associated and reasons given for such association.

Teachers must not be satisfied to have pupils get such facts only as will lead to scientific classifications. A large

share of attention must be given to studying the uses of animals and their relations to man; the relative economical and commercial values of animals. This will make it necessary to obtain information concerning the different forms and conditions in which animal products appear in the social and commercial world, and the processes by which these forms and conditions are brought about.

ORDER OF STUDY.

Each animal should be studied in the following order:

1. Parts.
2. Habits.
3. Uses.
4. Adaptation of parts to habits and uses.
5. Miscellaneous information.

After the type animals representing the various divisions of the group under consideration have been studied as above, study

6. Likenesses, and obtain the name of the group studied, then study
7. Differences, and obtain names for the different divisions.
8. Make outline.
9. Make Record of each animal studied.
10. Miscellaneous review—cross-section work.

RUMINANTIA.

(THREE MONTHS.)

Study, according to plan given, the cow, the sheep, the deer, the camel and the llama.

COMPARISONS.

By the study of differences get Hollow-horned Group, or *Cavicornia*, Solid-horned Group, or *Solidicornia*, Hornless Group, or *Sinecornia*.

Make the following outline:

Cud Chewers (<i>Ruminantia</i>)	{	Hollow-horned Group.
		(<i>Caricornia</i> .)
		Solid-horned Group.
		(<i>Solidicornia</i> .)
		Hornless Group.
		(<i>Sinecornia</i> .)

Make a Record of each animal studied according to the following plan:

THE COW.

Facts.		Conclusions.	
Parts.	Cloven hoofs; no front teeth in upper jaw; compound stomach.	Order.	Cud-chewers.
Habits.	Chews the cud.		Ruminantia.
Parts.	Hollow, permanent horns.	Family.	Hollow-horned Family.
Habits.			Cavicornia.

FOURTH GRADE.

NON-RUMINANTIA. (THREE MONTHS.)

Review Ruminantia.

Study the horse, the hog, the elephant, the rhinoceros.

COMPARISONS.

By the study of likenesses get non cud-chewers, or *Non-Ruminantia*.

By the study of differences get the Horse Family, or *Equidae*, the Hog Family, or *Suidae*, the Elephant Family, or *Elephantidae*, the Rhinoceros Family, or *Rhinocerotidae*.

Make outline of *Non-Ruminantia*.

Compare this group of animals with the group previously studied, and obtain for a result the term Hoofed Animals, or *Ungulata*, to apply to the whole group including ruminants and non-ruminants.

Make outline of *Ungulata*.

Make a Record of each animal studied.

NOTE.—Under the head of miscellaneous information pupils should be lead to talk of the various kinds of animals belonging to the different groups, which they may know, and while talking, they should be required to place each animal in its appropriate group. The various kinds of cattle, sheep, goats, horses, hogs, etc., afford abundant material for profitable miscellaneous reviews. Such reviews will serve not only to fasten in the minds of the pupils the technically scholastic parts of the lessons, but will induce original investigation and habitual classification of information.

FIFTH GRADE.

CARNIVORA. (FIVE WEEKS.)

Review *Ungulata* briefly.

Study the cat, the dog, the bear, the seal.

COMPARISONS.

By the study of likenesses get Flesh-eaters, or *Carnivora*.

By the study of differences get the Cat Family, or *Felidae*, the Dog Family, or *Canidae*, the Bear Family, or *Ursidae*, the Seal Family, or *Phocidae*.

Make outline of *Carnivora*.

Make Record of each animal studied.

Name other animals, and place each in its appropriate group.

INSECTIVORA. (TWO WEEKS.)

Study the mole in full, according to plan. Study the shrew and hedgehog less in detail, and establish the Order Insect-eaters, or *Insectivora*. Unite with outlines previously made, and make Record of animals studied.

RODENTIA. (FIVE WEEKS.)

Study the squirrel, the rabbit, the beaver, the rat.

COMPARISONS.

By the study of likenesses get Gnawers, or *Rodentia*.

By the study of differences get the Squirrel Family, or

Sciuridae, the Rabbit Family, or *Leporidae*, the Beaver Family or *Castoridae*, the Rat Family, or *Muridae*.

Make outline of Rodentia and a Record of each animal studied.

Name and locate other animals of this group.

Unite the outline with the outlines previously made.

SIXTH GRADE.

MARSUPIALIA. (TWO WEEKS.)

Study the kangaroo in full and the opossum and wombat less in details, and establish the group Pouched Animals, or *Marsupialia*.

Make Records.

Unite with outlines previously made.

EDENTATA. (TWO WEEKS.)

Study the sloth in full and the armadillo less in details, and establish the Order Toothless Animals, or *Edentata*.

Make Records.

Unite with outlines previously made.

CETACEA. (FOUR WEEKS.)

Study the common whale in full and the spermwhale and the dolphin less in details, and establish the Order Whales, or *Cetacea*.

Make Records.

Name other animals associated.

Unite outline with those previously made.

CHEIROPTERA. (TWO WEEKS.)

Study the bat in full; name the various kinds of bats, and establish the Order Hand-winged Animals, or *Cheiroptera*.

Make Records.

Unite with outlines previously made.

"QUADRUMANA. (TWO WEEKS.)

Study the monkey in full, and the chimpanzee, gorilla, orang-outang less in details, and establish the Order Four-handed Animals, or *Quadrumana*.

Make Records.

Unite with outlines previously made.

BIRDS.

(TWO WEEKS.)

Study a bird for the purpose of learning those characteristics which make it a bird, and the names and locations of its various parts.

Establish the group Birds, or *Aves*.

COMPARISONS.

Compare birds with other animals studied and obtain the terms *Oviparous* and *Viviparous*.

Unite all outlines previously learned under the term *Viviparous Animals*, or *Vivipara*.

SEVENTH GRADE,

BIRDS CONTINUED. (TWO WEEKS.)

Study the duck, the turkey and the robin.

COMPARISONS.

By the study of differences establish the Sub-Classes, Water Birds, or *Aves Aquaticae*, Land Birds, or *Aves Terrestres*, Air Birds, or *Aeriae*.

Outline Birds as far as studied.

Name many other birds, and assign each to its appropriate Sub-Class.

AVES AQUATICAE. (TWO WEEKS.)

Study the goose, the cormorant, the loon, and the gull.

COMPARISONS.

By the study of differences obtain the Orders, Water Birds with Lamellated Beaks, or *Lamellirostres*, Water Birds with Entire Palms, or *Steganopodes*, Rump-footed Water Birds, or *Pygopodes*, and Long-winged Water Birds, or *Longipennes*.

Make outline and unite with outline previously made.

Make Records.

Name many other water birds and assign each to its proper *Order*.

AVES TERRESTRES. (TWO WEEKS.)

Study the common hen, the heron, and the ostrich.

COMPARISONS.

By the study of differences obtain the Orders, Scratchers, or *Gallinae*, Waders, or *Grallatores*, and Runners, or *Cursores*.

Outline and unite with former outlines.

Make Records.

Name many other land birds and assign each to its proper *Order*.

AVES AERIAE. (TWO WEEKS.)

Study the eagle, the parrot, the pigeon, the sparrow, the woodpecker, the humming bird, and the nighthawk.

COMPARISONS.

By the study of differences obtain the Orders, Birds of Prey, or *Raptores*, Parrots, or *Psittaci*, Pigeons or *Columbae*, Sparrows, or *Passeres*, and a miscellaneous Group called *Picariae*.

Unite with outlines previously made.

Make Records.

Name many other air birds and assign each to its proper *Order*.

Pupils should be required to assign to its proper Sub-Class and Order every bird with which they are acquainted, or which they can name.

REPTILIA. (TWO WEEKS.)

Study the snake, the turtle, and the lizard, for the purpose of obtaining general common characteristics. Compare

with birds and establish the Class *Reptiles*, or *Reptilia*.

Study the same animals in full.

COMPARISONS.

By the study of differences obtain the *Orders*, Serpents, or *Ophidia*, Turtles, or *Chelonia*, and Lizards, or *Sauria*.

Compare with Birds and make outline of *Reptilia* under Oviparous Animals.

Make Records.

Name other animals belonging to *Reptilia* and assign each to its proper *Order*.

BATRACHIA. (TWO WEEKS.)

Study the frog, the salamander and the caecilia for the purpose of obtaining general characteristics. Compare with birds and reptiles in young, and in mature stages of life. Establish the Class *Batrachia*.

Study the same animals in full.

COMPARISONS.

By the study of differences obtain the *Orders*, Tailless Batrachians, or *Anoura*, Tailed Batrachians, or *Urodela*, Footless Batrachians, or *Apoda*.

Unite with outline under *Ovipara*.

Make Records.

EIGHTH GRADE.

PISCES. (TWO WEEKS.)

Study the mackerel and the sturgeon for the purpose of obtaining the general common characteristics. Compare with Birds, Reptiles and Batrachians, and establish the Class Fishes, or *Pisces*.

Study the mackerel and sturgeon in full.

COMPARISONS.

By the study of differences obtain the *Sub-Classes*, Bony Fishes and Cartilaginous Fishes.

Assign to its proper sub-class every fish with which the pupils are acquainted.

Unite with outline under *Ovipara*. Make Records.

Compare in review all animals studied and obtain the *Branch Vertebrata*.

Outline *Vertebrata* in full.

By way of review and *cross-section* work have pupils assign to each vertebrate animal known to them the branch, sub-branch, class, sub-class, order, super-order, and family, when possible.

Make Records to include all of the foregoing points. The Records should be made uniform in size. They should be kept neat and clean, and should be preserved by the pupils.

ARTICULATA. (TEN WEEKS.)

Study the wasp, the crab, and the common earth worm, to obtain the general common characteristics. Establish the *Branch Articulates*, or *Articulata*.

Compare with animals previously studied and establish the *Sub-Kingdom Invertebrates*, or *Invertebrata*.

Study the same animals in full.

COMPARISONS.

By the study of differences obtain the *Classes Insects*, or *Insecta*; *Crustaceans*, or *Crustacea*; and *Worms*, or *Vermes*.

Make Records. Make outline of *Articulates* as far as learned.

INSECTA.

Study the wasp, the spider and the myriapod.

COMPARISONS.

By the study of differences obtain the *Super-Orders Six-footed Insects*, or *Hexapoda*; *Many-footed Insects*, or *Myriapoda*; and *Spiders* or *Arachnida*.

Make Records. Unite outline with *Articulata*.

HEXAPODA.

Study the wasp, the butterfly, the common housefly, the cicada, the dragon fly, the grasshopper, and the beetle.

COMPARISONS.

By the study of differences obtain the *Orders Membranous-winged Insects*, or *Hymenoptera*; *Scale-winged Insects*,

or *Lepidoptera*; Two-winged Insects, or *Diptera*; Half-winged Insects, or *Hemiptera*; Nerve-winged insects, or *Neuroptera*; Straight-winged Insects, or *Orthoptera*; Sheath-winged Insects, or *Coleoptera*.

Make Records. Unite outlines with *Articulata*.

Name all insects known to the pupils, and assign each to its proper order.

CRUSTACEA.

Study the crab and the lobster, and establish the *Super-Order* Ten-footed Crustaceans, or *Decapoda*.

NINTH GRADE.

MOLLUSCA. (TWO WEEKS.)

Study the cuttlefish, the snail and the oyster, for the purpose of obtaining their general common characteristics. Compare with *Articulata* and establish the *Branch* Mollusks, or *Mollusca*.

Study the same animals in full.

COMPARISONS.

By the study of differences obtain the Classes Head-footed Mollusks, or *Cephalopoda*; Belly-footed Mollusks, or *Gasteropoda*; Headless Mollusks, or *Acephala*.

Unite with outline under *Invertebrata*.

Make Record of each animal studied.

RADIATA. (TEN WEEKS.)

Study the starfish, the jelly fish, and the coral, for the purpose of obtaining the general common characteristics. Compare with animals previously studied, and establish the *Branch* Radiates, or *Radiata*.

Unite with previous outline. Make Records.

Study likenesses of all groups of animals learned, and obtain *Animal Kingdom*.

Review and outline the entire work.

HUMAN BODY.

FIRST SERIES.

FIRST GRADE.

Lead pupils to see that the principal parts of the body are the head, the trunk, the upper extremities and the lower extremities. Let them give position in each instance.

I. Head.

(SIX WEEKS.)

PARTS:—*Top or crown, front or face, sides, back.*

1. Teach that the top and back parts of the head are covered with hair.

Give use and care of the hair.

2. On the sides of the head are found the ears.

Give use of the ears; give care of the ears, as follows:

Keep clean; cleanse with warm water; do not put objects in the ears; do not pick the ears with pins.

3. On the front or face are found the forehead, eyes, nose, cheeks, lips and chin.

(a) Give position of the forehead.

(b) Give the parts of the eyes, as follows: brows, lids, lashes, balls.

Give the position of each part.

Give the use of each part.

Give the care of each part, as follows:

Keep clean; do not rub the eyes with the hands; do not rub the eyes to get out dust or cinders; do not strain the eyes by looking at the sun, reading by twilight or by poor light, or by looking cross-eyed.

(c) Give position and uses of the nose.

Give care of the nose, as follows:

Keep clean—proper time—manner; do not push substances up the nose.

(d) Give position of the cheeks—right, left.

(e) Give position and use of the lips—upper, lower.

(f) Give position of the chin.

II. Trunk.

Give general use of the trunk.

III. Upper Extremities. (THREE WEEKS.)

PARTS:—*Arm, forearm, wrist, hand.*

Give the position of each part.

Give connection of parts—joints.

Give parts and position of parts of the hand, as follows:
back, palm, fingers, thumb, nails.

Give connection of parts—joints.

Give uses of the hand—for carrying food to the mouth; for work; for protection.

Give care of the hands:

Keep clean and dry; keep the nails clean and short (when and how); do not strain the joints by pulling the parts to make them crack.

IV. Lower Extremities. (THREE WEEKS, including a Review.)

PARTS:—*Thigh, leg, ankle, foot.*

Give the position of each part.

Give connection of parts—joints.

Give parts of the foot, as follows: heel, instep, sole, toes.

Give the position of each part.

Give uses of the foot—running, walking, jumping.

Give care of the feet:

Keep clean; when sitting let the feet rest upon the floor; do not twist the feet when walking; do not stand upon the sides of the feet; avoid wearing tight shoes.

V. Skin.

The covering of the body is called skin.

The skin should be kept clean by bathing as often as once or twice a week.

SECOND GRADE.

DIGESTION. (SIX WEEKS.)

I. Food.

Lead pupils to state why we eat, where the food is first received, what process it undergoes there, and by what means this is accomplished.

II. Teeth.

1. LOCATION. 2. COVERING. 3. KINDS—incisors, molars, canines.

Give the form and use of each kind, and tell where situated.

Give the care of the teeth, as follows:

Keep clean (manner of cleaning); do not pick the teeth with hard substances; do not crack nuts with the teeth (show why).

III. Tongue.

1. LOCATION. 2. USES.

IV. Saliva.

Lead pupils to state the effect of chewing (food is moistened) and discover whence the moisture comes and what it is called.

Give care of sacs.

Do not chew gum; do not chew tobacco.

Teach that in chewing gum the saliva is wasted (show why it should not be wasted).

Teach that in chewing tobacco the saliva is poisoned (show why it should not be poisoned).

When the food is swallowed it goes through a tube into a sac called the stomach.

V. Stomach.

1. LOCATION. 2. USE. 3. CARE.

Give uses of the stomach—to receive food; to soften and mix the food. Give name of the fluid found in the stomach.

Give care of the stomach:

- (a) Time of taking food—stated times; do not eat between meals.
- (b) Manner of eating—eat slowly; masticate thoroughly; do not drink while eating.
- (c) Quantity of food—do not eat too much; stop eating before fully satisfied.
- (d) Condition of food—do not take food very hot nor very cold; hot food more healthful than cold.

The food passes from the stomach into the intestines. All that part of the food that can be used to make blood is taken by many little vessels and goes to another sac called the heart.

CIRCULATION. (TWO WEEKS.)

I. Heart.

1. LOCATION.

2. USE.

Acts as a force pump to drive the blood through tubes to all parts of the body.

- This action is shown by the beating of the heart.

The effect of this action is shown by the flowing of blood when the flesh is cut.

When the heart stops beating we die.

Remarks: 1. The tubes through which the blood flows are called veins.

2. When the flesh is cut, one or more veins are cut and the blood flows out.

3. As the blood passes through the tubes, portions of it are left to nourish the different parts of the body.

THIRD GRADE.

RESPIRATION. (TWO WEEKS.)

By observing very closely, a movement of the upper part of the body, called the chest, may be seen.

This movement takes place when we breathe.

Air passes through the mouth and nose, thence through a tube called the windpipe into the body.

Air is received by two sponge-like sacs called lungs.

Air passes out again through the same tube.

I. Lungs.

LOCATION.

II. Passages.

1. TRACHEA (windpipe). 2. ESOPHAGUS.

Give use of each; give cause of choking; teach care in swallowing.

SENSATION. (SIX WEEKS, including a Review.)

Teach the fifth sense, that of feeling, reviewing each of the other four.

Give the location of each of the five senses.

Give the location of the knowledge of the effect of these senses.

Give the term organ, and the definition of each organ.

Teach how knowledge is carried to the brain.

I. Nerves.

DISTRIBUTION.

SECOND SERIES.

FOURTH GRADE.

(THREE MONTHS.)

BONES.

I. Structure.

1. HOLLOW. 2. CYLINDRICAL. 3. FILLED WITH A SOFT SUBSTANCE CALLED MARROW. 4. ENDS ENLARGED.

II. Qualities.

1. LIGHTNESS. 2. HARDNESS. 3. ELASTICITY. 4. STRENGTH.

III. Distribution.

1. HEAD.

- (a) *Skull*,—(1) location, (2) number, (3) form, (4) use, (5) care; avoid concussions; treatment of bruises,—
 (b) *Eur*,—(1) location, (2) number, (3) form, (4) use,—
 (c) *Face*,—(1) names of principal bones, (2) number, (3) location of principal bones, (4) attention to differences in form.

2. TRUNK:—

- (a) *Thorax*,—(1) *Spinal Column*,—(aa) location, (bb) structure, (cc) number, (dd) use, (ee) care—manner of sitting and standing; do not strain by lifting too heavy weights; (2) *Ribs*,—(aa) location, (bb) shape, (cc) use, (dd) care; do not compress with clothing or belts; (3) *Breast-bone*,—(aa) location, (bb) use, (cc) name—sternum,—
 (b) *Pelvis*,—(1) location, (2) number, (3) use.

3. UPPER EXTREMITIES:—

- (a) *Shoulder*,—(1) location, (2) number, (3) names—clavicle, scapula,—(4) form,—
 (b) *Arm*,—(1) location, (2) size, (3) form, (4) name—humerus,—
 (c) *Forearm*,—(1) location, (2) relative size, (3) names—ulna, radius,—
 (d) *Wrist*,—(1) location, (2) number, (3) use,—
 (e) *Hand*,—(1) location, (2) number, (3) parts—palm, fingers, thumb.

4. LOWER EXTREMITIES:—

- (a) *Thigh*,—(1) location, (2) size, (3) form, (4) name—femur,— (Compare.)
 (b) *Knee*,—(1) location, (2) size, (3) form, (4) use, (5) name—patella,—
 (c) *Leg*,—(1) location, (2) size, (3) form, (4) use, (5) relative size, (6) comparison with corresponding bones in upper extremities, (7) names—tibia, fibula,—

(*d*) *Ankle*,—(1) location, (2) number, (3) comparison with corresponding part in upper extremities, (4) why easily sprained,—

(*e*) *Foot*,—(1) location, (2) number, (3) comparison with corresponding parts of hand in respect to size and shape, (4) care; do not wear tight boots or shoes; keep warm and dry.

Review work on teeth.

Review work on joints.

IV. Connections.

1. LOCATIONS. 2. KINDS—*hinge, ball and socket*. 3. EFFECT OF EXERCISE.

LIGAMENTS (GENERAL IDEA.)

I. Location.

II. Form.

III. General Properties.

1. FLEXIBILITY. 1. ELASTICITY. 3. SMOOTHNESS.

IV. Uses.

V. Care.

1. SIT AND STAND ERECT.
 2. DO NOT STRAIN BY LIFTING.
- Remark: Teach what a sprain is.

MUSCLES. (GENERAL IDEA.)

I. Location.

II. Structure.

1. PARTS. 2. ARRANGEMENT.

III. Properties.

2. CONTRACTION. 2. RELAXATION.

IV. Attachment.

1. TENDONS (inelastic):—
(*a*) location, (*b*) color.

V. Uses.

1. MOTIONS:—
(*a*) of parts of body, (*b*) of air from lungs, (*c*) of blood from the heart. (Review circulation and respiration as given before).
2. TO KEEP BODY IN ERECT POSITION.

VI. Kinds.

1. FLEXORS. 2. EXTENSORS.

VII. Care.

1. PROPER EXERCISE. 2. PROPER REST.

Remarks:

1. Sleep is the best rest.
2. Children require more sleep than grown persons.
3. The blacksmith's and gymnast's arms are strong because they are much used.

FIFTH GRADE.

(THREE MONTHS.)

SKIN. (GENERAL IDEA.)

I. Structure.

1. EPIDERMIS,—(*a*) hair, (*b*) nails.
2. CUTIS VERA,—(*a*) nerves, (*b*) blood vessels, (*c*) glands—oil, sweat.

II. Use.

1. PROTECTION. 2. ABSORPTION.

Remarks:

1. Teach why liniments are used.
2. Teach how we are poisoned.
3. Teach that all material is not used, but some is thrown off; also that the parts of the body are wasted by use, and that the waste particles are thrown off by the skin.

III. Care.

1. BATHING,—manner, time, frequency.
2. CLOTHING,—quality, quantity, manner of wearing, changes.
3. LIGHT. 4. AIR.

Remarks:—Cause of calluses, blisters, scars, colds.

BLOOD. (GENERAL IDEA.)

I. Composition.

1. WATER. 2. COLORING MATTER. 3. SALT. 4. LIME.

II. Properties.

1. COAGULATION,—(*a*) result, (*b*) use.
2. FLUIDITY.

III. Kinds.

1. ARTERIAL,—(*a*) origin of name, (*b*) color, (*c*) use.
2. VENOUS,—(*a*) origin of name, (*b*) color, (*c*) use.

IV. Care.

1. PURE AIR. 2. EXERCISE. 3. FOOD—quantity, quality.

DIGESTION.

I. Operations.

1. MASTICATION:—

- (*a*) *Organs*,—(1) Mouth—(*aa*) location, (*bb*) action, (*cc*) use,—(2) Teeth—(*aa*) location, (*bb*) action, (*cc*) use, (*dd*) kinds—shape, use, (*ee*) care—(See First Series),—(3) Tongue—(*aa*) location, (*bb*) action, (*cc*) use,—(4) Salivary Glands—(*aa*) kinds, (*bb*) location, (*cc*) action, (*dd*) use, (*ee*) care.
- (*b*) *Objects*:—(1) To crush food,—(2) To moisten food.

2. DEGLUTITION:—

- (*a*) *Organs*,—(1) Pharynx,—(*aa*) location, (*bb*) use, (*cc*) care, (2) Œsophagus,—(*aa*) location, (*bb*) use.
- (*b*) *Object*,—(1) To carry food from the mouth to the stomach.

3. DIGESTION PROPER:—

- (*a*) *Organs*,—(1) Stomach—(*aa*) location, (*bb*) parts, (*cc*) name and use of each part, (*dd*) use, (*ee*) care,—(2) Intestines—(*aa*) name and relative size, (*bb*) location, (*cc*) use.
- (*b*) *Object*,—(1) To change food into blood material.

FOOD.

I. Composition.

1. LIME. 2. STARCH. 3. ALBUMEN. 4. WATER. 5. SALT.
6. FAT.

II. Use.

1. Bones are chiefly made from the lime we eat in our food.
2. Fat is made from the fat and starch we eat in our food.
3. Muscle is made from the albumen which our food contains.
4. A large portion of the body consists of water which our food contains.

5. The tears, perspiration and blood contain salt that is taken in our food.
6. The fatty and fat-producing substances which we eat produce heat.

III. Selection.

1. Wheat, corn, oats, rye contain mostly albumen, and these substances are taken to make muscle and fat.
2. Lean meat contains albumen and makes muscle.
3. Fat meat produces heat.
4. Milk contains albumen and oil, and makes muscle and heat.
5. Eggs contain albumen and make muscle.
6. Vegetables contain starch and water.
7. Fruits contain sugar and water.
8. From starch and sugar fat is made.

Remarks:

1. The Laplanders and Esquimaux eat a great deal of fat because they live in very cold countries.
2. The inhabitants of the torrid zones eat much fruit because fruit produces no heat.

Conclusions:

1. In the summer time we should eat fruits and vegetables, unless we work hard, in which case we should eat some meat.
2. In the winter we should eat hearty food, as grains and meat. We should avoid eating fat unless working hard or exposed to the cold.
3. Too much hearty food is injurious.
4. Food taken late at night is injurious.

Review First Series.

SIXTH GRADE.

CIRCULATION (THREE MONTHS.)

I. Organs.

1. HEART,—(*a*) location, (*b*) parts, (*c*) number and names of parts, (*d*) form, (*e*) composition, (*f*) properties—contraction, relaxation, (*g*) covering, (*h*) action, (*i*) use.

2. ARTERIES,—(*a*) distribution, (*b*) structure, (*c*) form, (*d*) action, (*f*) properties—contraction, relaxation.
3. CAPILLARY VEINS. (See Arteries for topics.)
4. VEINS. (See Arteries for topics.)

II. Object.

1. To furnish nutriment for the tissues.
2. To carry decomposed material, in the form of carbon, back to the lungs for exhalation.
3. To carry substances back to the lungs for renovation.

Remarks:

1. When a slight cut is made the capillaries are severed.
2. When a deeper cut is made veins or arteries are severed.
3. When arteries are cut the flow of blood should be stopped by cording tightly the part above the wound.
4. In all cases of bleeding keep the wound clean.
5. Do not allow any foreign substance to come in contact with the wound, for fear of poisoning.
6. The venom of a snake is poisonous only when it gets into the blood.
7. If the poison be immediately sucked from the wound, the danger may be averted.
8. In case the poison cannot be withdrawn the part should be bound tightly above the wound to prevent circulation.
9. Blood flows more freely to parts in action than to other parts.
10. After we have eaten, more blood is needed and, if not prevented, will flow to the stomach to assist in digesting the food.
11. For at least an hour after eating we should not indulge in violent exercise—running, jumping, or hard work.
12. Lessons should not be studied immediately after eating.
13. Headaches are caused by too much blood in the head.
14. Hot foot-baths relieve the head by drawing from it part of the blood.
15. Blisters are sometimes placed on the head to draw the blood from the brain to the surface.

RESPIRATION.

I. Movements.

1. INSPIRATION. 2. EXPIRATION.

II. Organs.

1. LUNGS,—(*a*) location, (*b*) texture, (*c*) structure, (*d*) properties — expansion, contraction, (*e*) parts — bronchial tubes, lobules, air-vessels, (*f*) air.
2. DIAPHRAGM,—(*a*) location, (*b*) structure, (*c*) composition, (*d*) movements, (*e*) use.
3. INTERCOSTAL MUSCLES,—(*a*) location, (*b*) properties.

III. Avenues.

1. NOSE. 2. MOUTH. 3. PHARYNX. 4. LARYNX. 5. TRACHEA.
6. BRONCHI.

IV. Object.

1. To purify the blood and fit it for use, by freeing the impure blood of the waste matter which it contains.
2. To change the digested food into blood.

Remarks:

1. Air is made impure by the waste material of the body, which is thrown from the lungs.
2. Impure air is poisonous.
(Refer to foul air in wells, mines, etc., and explain in full.)
3. Impure air in sleeping and dwelling rooms is of the same kind.
4. It is injurious to sit in crowded rooms.
5. Impure air is heavier than pure air; therefore is at the bottom of the room.
6. It is unwholesome to sleep in small and poorly-ventilated rooms.
7. It is unwholesome to breathe air that contains gas from a pipe or a stove.
8. It is unwholesome to breathe air that contains dust.
9. Persons who work in dusty factories are short-lived.
10. Persons who work at grindstones or emery wheels are short-lived.
11. Air which contains iron filings is unhealthful.

12. The dust in grain ware-houses, flouring mills and planing mills is unhealthful.
13. Respirators are used by many who work in such places.
14. Air should be taken through the nose and not through the mouth. The hair in the nose acts as a respirator and should not be removed. (Show how a respirator acts.)
15. Too rapid breathing, caused by running and jumping, is injurious.
16. Do not run up nor down stairs.
17. When breathing, air should be taken into all parts of the lungs; breathing, therefore, should be deep.
18. The lungs should not be compressed in any way.

THIRD SERIES.

SEVENTH GRADE.

(THREE MONTHS.)

BONES.

Review the subject *Bones* and teach composition of bones, calling attention of pupils to the differences in bones of young and old.

1. Review bones of the *head*. Call attention to the structure of the skull, the location of the bones, and the peculiar adaptation of form and structure to use. Call attention to the bones of the ear and associate names with shapes.
2. Review bones of the *trunk*. Call attention to the location and structure of spinal column, ribs, sternum and pelvis, dwelling at length on the adaptation of the parts to the wants and uses of man. Show the effect of injuries, the causes of round shoulders, etc.
3. Review bones of *upper extremities* and give scientific names. Call attention to the formation of the hand,

dwelling at length on the parts and their adaptation to use.

4. Review bones of *lower extremities* and give scientific names. Call attention to the foot, dwelling at length on the structure and the adaptation of structure to use.
5. Expand *Cure of Bones*, and draw from pupils the reason that bones of the old are broken more easily than those of the young.
6. Outline the subject *Bones*.

LIGAMENTS.

1. Review entire subject.
2. Outline the subject *Ligaments*.

CARTILAGE.

I. Location.

II. Properties.

1. ELASTICITY. 2. COMPRESSIBILITY.

III. Composition.

IV. Use.

1. TO PROTECT THE BONES FROM INJURY. 2. TO CONNECT.

V. Outline Cartilage.

MUSCLES.

Review the subject *Muscles*, and teach forms of muscles. Call attention to adaptation of form to situation.

Explain the action of the muscles in running, jumping, etc.

Outline the subject *Muscles*.

CELLULAR TISSUE.

I. Location.

II. Composition.

III. Structure.

1. FIBRES. 2. CELLS.

IV. Property.

- 1 ELASTICITY.

V. Use.

1. TO CONNECT ORGANS.
2. TO PROTECT NERVES AND BLOOD-VESSELS AND ENCLOSE MUSCULAR FIBRES.

Outline the subject *Cellular Tissue*.

ADIPOSE TISSUE.

I. Location.

1. BENEATH THE SKIN.
2. ABOUT THE DIFFERENT ORGANS.

II. Composition.

1. CELLULAR TISSUE.
2. FATTY SUBSTANCE.

III. Use.

1. TO RETAIN HEAT.
2. FOR PROTECTION.

Outline the subject *Adipose Tissue*.

SKIN.

Review the subject *Skin*, dwelling more fully on structure. Give names of glands.

Call attention to the size and number of the glands, and the necessity of keeping them open.

Review the subject *Care*. Outline the subject *Skin*.

BLOOD.

Review the subject *Blood*, and expand.

Outline the subject *Blood*.

DIGESTION.

Review the subject *Digestion*.

1. Give more about the gastric juice and its action on the ingredients of the food.
2. Give the peristaltic action of the œsophagus and stomach and the effect of this action.
3. Explain how the food is retained in the stomach, (valves, bands.)
4. Give changes which the food undergoes in the intestines, and how these changes take place.
5. Give names of juices and tell where they are secreted; also, give names and descriptions of organs—Pancreas, Liver, Follicles of small Intestine.
6. Give appearance and name of food in small intestine.
7. Give an exhaustive review of *Food*,—composition, kinds, time required for digesting different kinds.

Outline the subjects *Food* and *Digestion*.

ABSORPTION.

I. Organs.

1. LINING MEMBRANE OF INTESTINES:—

(a) extent, (b) nature—thin, flexible, soft, (c) action, (d) use.

2. BLOOD VESSELS OF SMALL INTESTINE:—

(a) location, (b) action, (c) use.

3. LYMPHATIC VESSELS:—

Kinds,—(1) lacteals—(aa) location, (bb) action, (cc) color, (dd) use, (2) lymphatics—(See lacteals.)

4. WALLS OF CAPILLARIES:—

(a) action, (b) use.

II. Object.

1. To remove nutriment from intestines to circulatory vessels.

2. To remove nutriment for the formation of tissue.

3. To remove matter which requires renovation.

4. To remove matter which has become useless.

Outline the subject *Absorption*.

CIRCULATION.

Review entire subject. Dwell at length upon the mechanism of heart. Outline the subject *Circulation*.

RESPIRATION.

Give an exhaustive review of organs, avenues and mechanism.

1. Action of blood-globules. (Lessons on combustion must precede this topic.)

2. Exhaust *Care*, giving reasons for all information before given.

3. Describe modes of ventilation; decide which is preferable, and give reasons.

Outline the subject *Respiration*.

NUTRITION.

I. Assimilation.

1. ORGANS:—

Tissues,—(1) kinds—cellular, osseous, muscular, mucous, nervous, (2) location, (3) structure, (4) action—regular, irregular.

2. NUTRITIVE ELEMENT:—

Blood—(See Outline.)

3. OBJECT:—

To produce tissue element from the blood.

II. Secretion.

1. ORGANS:—

- (a) *Glands*,—(1) structure, (2) kinds,—(aa) liver—location, substance formed, use,—(bb) pancreas—location, substance formed, use,—(cc) salivary glands (See liver for topics,—(dd) milk glands (See liver for topics).
(b) *Membranes*,—(1) structure, (2) kinds—mucous, lining, (3) use.

2. OBJECT:—

To produce certain substances necessary in the animal economy.

III. Excretion.

1. ORGANS:—

Glands,—(1) kidneys—(aa) location, (bb) form, (cc) structure, (dd) substances excreted—creatine, creatinine, urea, urate of soda, (2) lungs—(aa) (See respiration), (bb) substances thrown off—carbonic acid gas, animal matter, vapor, (3) sebaceous glands—(aa) location, (bb) structure, (cc) substance thrown out, (4) sweat glands—(aa) location, (bb) structure, (cc) substances thrown out—animal matter, water, minerals.

2. OBJECT:—

To rid the system of waste material.

Outline *Nutrition*.

EIGHTH GRADE.

(THREE MONTHS.)

NERVOUS SYSTEM.

General idea of Cerebro-Spinal System.

I. Nerves.

1. COMPOSITION:—

- (a) White matter, (b) gray matter, (c) membrane.

2. STRUCTURE:—

(a) Filaments, (b) sheath.

3. KINDS AS TO ORIGIN:—

(a) *Spinal*,—(1) arrangement, (2) distribution, (3) combination—(aa) spinal cord—(aaa) location, (bbb) composition, (ccc) structure—anterior, posterior, (ddd) termination, (eee) use, (4) decussation,—(b) *Cranial*,—(1) general use, (2) composition, (3) structure, (4) arrangement,—pairs—number, origin, distribution, use.

4. KINDS AS TO FUNCTION:—

(a) Sensation, (b) motor.

II. Brain.

1. LOCATION.

2. PARTS:—

(a) *Medulla oblongata*,—(1) location, (2) composition, (3) structure, (4) form, (5) functions—respiration,—(b) *Cerebellum*,—(See *medulla oblongata* for topics.)
Function unknown,—(c) *Tuber annulare*,—(See *medulla oblongata* for topics.)
Functions—sensation, volition,—(d) *Cerebrum*,—(See *medulla oblongata* for topics.)
Functions—memory, reason, judgment.

3. CARE.

General idea of sympathetic system.

I. Ganglia.

1. LOCATION.

2. COMPOSITION,—gray matter.

3. CONNECTIONS,—(a) with each other, (b) with spinal cord.

4. USE,—control of internal organs.

II. Nerves.

1. COMPOSITION.

2. DISTRIBUTION,—(a) internal organs, (b) arteries and veins.

3. ACTION,—(a) slow, (b) reflex.

4. USE,—to receive impressions and to communicate them to the ganglia.

SPECIAL SENSES.

I. Sight.**1. ORGANS:—**

- (a) *Optic Nerve*,—(1) origin, (2) decussation, (3) termination, (4) use—(aa) to receive impressions caused by light and convey them to the brain,—
- (b) *Eyeball*,—(1) location, (2) form, (3) parts—(aa) coats—sclerotic, cornea, choroid, iris, retina, (bb) humors—aqueous, vitreous, crystalline lens, (4) movements—(aa) kinds—upward, downward, inward, outward, rotary, (bb) mechanism—(aaa) motor nerves—third, fourth and sixth pairs, (bbb) muscles—straight, oblique, (5) protection—(aa) orbit, (bb) eyebrows, (cc) eyelids—(aaa) location, (bbb) number, (ccc) parts—lashes, skin, plates, conjunctiva,—(dd) glands—lachrymal, oil.

2. OBJECT:—

Perception of impressions caused by sight.

3. CARE:—

- (a) The eye should not be used too long at a time.
- (b) The eye should not be exposed to a too brilliant light.
- (c) Reading in a flickering or uncertain light is injurious.
- (d) The eye should not be used in light not sufficiently strong.
- (e) Sudden transitions of light are injurious.
- (f) Long continued examinations of small objects are injurious.
- (g) Objects should not be held too near the eye.
- (h) The eye should be bathed in cold water every morning.
- (i) Teach how to remove objects from the eye.

NINTH GRADE.

(THREE MONTHS.)

I. Hearing.**1. ORGANS:—**

- (a) *Auditory Nerve*,—(1) location, (2) origin, (3) termination, (4) use,—

- (b) *External ear*,—(1) location, (2) parts—(aa) auditory meatus, (bb) pinna—(aaa) location, (bbb) parts—helix, antehelix, tragus, antetragus, concha, (ccc) use—to receive vibrations and conduct them to the middle ear,—
- (c) *Middle ear*,—(1) location, (2) bones—(aa) location, (bb) size, (cc) form, (dd) names—anvil, stirrup, mallet, (ee) use—to increase the tension of the tympanum and to conduct impressions, (3) openings—(aa) location, (bb) number, (cc) names—auditory meatus, fenestra ovalis, fenestra rotunda, mastoid cells, eustachian tube, —
- (d) *Internal ear*,—(1) location, (2) form, (3) parts—(aa) vestibule—location, form, use, (bb) semi-circular canal—location, form, use, (cc) cochlea—location, form, use, (4) contents—lymph, sheath.

2. OBJECT:—

Perception of impressions caused by sound.

III. Smell.

2. ORGANS :—

- (a) *Olfactory Nerve*,—(1) location, (2) origin, (3) termination, (4) use,—
- (b) *Nose*,—(1) location, (2) form, (3) parts—(aa) bones—sphenoid, ethmoid, (bb) fibro-cartilages—general idea, (cc) mucous membrane—location, appendages, use, (4) cavities—nasal fossae—location, number, use.

2. OBJECT:—

Perception of odors.

IV. Taste.

1. ORGANS :—

- (a) *Special*,—(1) gustatory nerve—(aa) location, (bb) origin, (cc) termination, (dd) use, (2) tongue—(aa) location, (bb) form, (cc) parts—muscular fibres, lining membrane, papillae,—
- (b) *Auxiliaries*,—lips, palate, internal surface of cheeks, upper part of the œsophagus.

2. OBJECT:—

Perception of impressions caused by food.

Object of nervous system—control.

Outline *Nervous System*.

FORMATION OF VOICE.

I. Organs.

1. VOCAL CHORDS:—

(a) location, (b) number, (c) action.

2. LARYNX:—

(a) location, (b) form, (c) structure, (d) action.

II. Action Involved.

1. EXPIRATION—(how involved.)

III. Object.

To communicate thoughts and feelings.

IV. Care.

1. The head should be held erect.
2. The muscles of the neck should not be compressed.
3. Impure air is injurious to voice.
4. Elementary sounds should be practiced to develop and protect the organs.
5. The voice should not be unduly exercised, especially in young persons.

Outline *Voice*.

MOTION.

I. Organs.

1. MUSCLES. 2. MOTOR-NERVES. 3. SYMPATHETIC NERVES.

II. Kinds.

1. VOLUNTARY:—

(a) *Organs involved*—muscles, motor-nerves, spinal cord, brain,—(b) *How performed*,—(c) *Parts moved voluntarily*—head, trunk and extremities.

2. INVOLUNTARY:—

(a) *Organs involved*—muscles, sympathetic nerves and ganglia, certain motor nerves,—(b) *How performed*,—(c) *Actions involved*—respiration, absorption, circulation, deglutition, secretion, excretion, assimilation.**III. Object.**

To sustain life and to enable man to fulfill the conditions of his existence.

Outline *Motion*.

SUPPORT.

I. Instruments.

1. BONES. 2. MUSCLES. 3. LIGAMENTS.

II. Mechanism.**III. Object.**

To preserve the equilibrium of the body.

Outline *Support*.

PROTECTION.

I. Instruments.

1. BONES. 2. MUSCLES. 3. CARTILAGE. 4. ADIPOSE TISSUE. 5. SKIN.

II. Object.

To preserve the body.

Outline the subject *Protection*.

Outline the entire subject *Human Body*.





FIRST GRADE.

MATERIAL.

Pupils should be supplied with slates and long, sharp pencils; also, with two sets of measures made of stiff paper, or wood, and divided by lines as shown below. In the first lessons the measures used should be one inch wide and two inches long; but after some progress has been made, these should be replaced by measures four inches long.

The teacher should take charge of pencils and measures, and should appoint pupils to distribute them at the beginning, and to collect them at the close, of each lesson.



POSITION.

Pupils should assume a front position, and the body should be kept as nearly upright as possible. For drawing vertical lines, the slate should be placed in front of the pupil and parallel with the edge of the desk.

For drawing horizontal lines the slate should be placed slightly to the right of a front position, and it should be

slightly inclined so that the pupil may have free movement of the arm and body.

For drawing horizontal lines, the pencil should be held in the same position as for writing.

For drawing light vertical lines, the pencil should be held in the same way as for writing, then the hand should be turned to the right so that the pencil shall form a right angle with the line to be drawn.

For drawing heavy vertical lines, the hand should be turned toward the right so that it will rest upon the backs of the second, third and fourth fingers, bringing the pencil at right angles with the line to be drawn.

RIGHT LINES, SPACES. (FOUR MONTHS.)

- I.—1. Teach the definitions of *a line*; *a straight line*; *a curve line*; *a vertical line*.
2. Give pupils practice in drawing lines without reference to length.
3. Give pupils the idea of an inch and application of the same.
4. Teach the terms, right, left, front, back, centre, top, bottom, above, below, beneath, between, in, on and under.
5. Draw vertical lines two inches long.
(Require pupils to draw from top downward.)
6. Teach the definition of *parallel lines*.
7. Draw three vertical lines two inches long and one-half inch apart.
8. One inch to the right of the first group draw a second group.
9. One inch to the right of the second group a third group.

PLAN.

1. At given signals pupils place slates in position for drawing vertical lines.
2. Pupils sit in proper position.
3. Take pencils and turn the hand in the required position for drawing vertical lines.

The pupils are required to give close attention and the teacher dictates as follows:

1. One inch below the top of the slate make a point. The teacher counts *one*, and each member of the class follows his dictation.
2. Two inches below this point make another point. The teacher counts *two*.
3. Connect these points, *three*.

Require pupils to draw, commencing at the first point with downward movement to the second.

At a given signal pupils takes measures and measure,

- (a) the distance from the top of the slate to the first point,
- (b) the length of the lines.

The teacher calls for hands of those who find lines,

- (a) two inches long,
- (b) more than two inches long,
- (c) less than two inches long.

Measures should be left upon the slates while the teacher passes among the pupils and examines the work, criticising the slightest variations in length or direction.

After an examination of slates, measures are placed upon the desks and lines erased. The teacher dictates, giving signals, and counting *one, two, three*, as before. Pupils draw, and criticisms follow. These exercises should be continued until children are all able to draw vertical lines two inches in length. The teacher should insist, during the entire lesson, upon correct positions, simultaneous movements, and accuracy in the work.

Teach the definition of *parallel lines*.

To draw a group of vertical lines, the pupils draw one line as in previous lessons. Measures are applied as before, and if the line is too long the pupil is allowed to make it shorter, or if too short, to make it longer.

The teacher then dictates as follows:

1. One-half inch to the right of the first point make a point. Teacher counts *one*.
2. Two inches below this point make another point, *two*.
3. Connect these points, *three*.

4. Take measures and see that the lines drawn are one-half inch apart.

The teacher examines the work.

(Require the pupils to say, These lines are vertical and parallel. Tell why the lines are said to be vertical and why parallel. If necessary, the pupils should be allowed to erase this line and try again.)

5. One-half inch to the right of the second line draw another vertical line, *one, two, three.*
 6. One inch to the right of this group and one inch from the top of the slate make a point, *one.*
 7. Two inches below this point make another point, *two.*
 8. Connect these points, *three.*
- (Measures are applied.)
9. One-half inch to the right draw a vertical line, *one, two, three.*
 10. One-half inch to the right of the last line drawn draw a vertical line, *one, two, three.*
 11. One inch to the right of the second group draw a third group.

(The teacher dictates and counts.)

FORM.

- II.—1. Do work corresponding to I, using horizontal lines. Require pupils to draw from left to right. Follow the plan given for vertical lines.
2. Teach the definition of a *horizontal line.*
- III.—1. Draw two vertical lines two inches long and one inch apart.
2. Divide and sub-divide the space between these two lines by drawing vertical lines.
3. Do corresponding work with lines two inches long and two inches apart.
- IV.—Do work corresponding to III, using horizontal lines.
- V.—1. Draw a vertical line two inches long and bisect it.
2. Teach the definition of *bisect.*
3. Draw two vertical lines two inches long and one inch apart, bisect each, and connect the bisecting points.
- VI.—Do work corresponding to V, using horizontal lines.

- VII.—1. Draw a vertical line two inches long and bisect it.
2. One inch to the left and right of the bisecting point make points and connect, forming a cross.

VIII.—Do work corresponding to VII, drawing the horizontal line first.

(THREE MONTHS.)

IX.—Do work corresponding to I, using four-inch lines.

X.—Do work corresponding to II, using four-inch lines.

XI.—Do work corresponding to III, using four-inch lines.

XII.—Do work corresponding to IV, using four-inch lines.

XIII.—Do work corresponding to V, using four-inch lines.

XIV.—Do work corresponding to VI, using four-inch lines.

XV.—Do work corresponding to VII, using four-inch lines.

XVI.—Do work corresponding to VIII, using four-inch lines.

XVII.—1. Draw one vertical line two inches long; bisect; bisect the parts.

2. Draw two vertical lines two inches long and one inch apart; bisect each line; bisect the parts, connect corresponding opposite bisecting points.

3. Do corresponding work, using four inch lines.

XVIII.—Do work corresponding to XVII, using horizontal lines.

XIX.—1. Draw a vertical line two inches long; bisect; bisect the parts.

2. One inch to the left and right of each bisecting point make points and connect corresponding opposite points.

3. Do corresponding work, using four inch lines.

XX.—Do work corresponding to XIX, using horizontal lines.

(THREE MONTHS.)

XXI.—1. Draw a vertical line two inches long and trisect it.

2. Teach the definition of *trisect*.

3. Draw two vertical lines two inches long and one inch apart; trisect each line; connect corresponding opposite trisecting points.

4. Do corresponding work, using four-inch lines.

XXII.—Do work corresponding to XXI, using horizontal lines.

XXIII.—1. Draw a vertical line two inches long and trisect it.

2. One inch to the left and right of each trisecting point make points, and connect corresponding opposite points.

3. Do corresponding work, using four inch lines.

XXIV.—1. Do work corresponding to XXIII, using horizontal lines.

2. Review the work in *Form*.

3. Teach the definitions of an *oblique line*; *converging lines*; an *angle*; a *right angle*; an *acute angle*; an *obtuse angle*.

4. Teach the relative size of angles.

5. Give pupils practice in drawing angles without reference to length or direction of lines.

XXV.—1. Draw a vertical line two inches long and bisect it.

2. One inch to the right of the bisecting point make a point, and connect the two.

3. Make a point one inch below the last point, and connect the two.

4. Make a point in each vertical line one-half inch below the horizontal line, and connect.

SECOND GRADE.

(FOUR MONTHS.)

XXVI.—Give pupils practice in drawing half-inch, inch, two-inch, three-inch and four-inch lines.

XXVII.—1. Draw a horizontal line one-half inch long, and trisect it.

2. From each trisecting point draw a vertical line two inches long, and finish the lower part of the figure with a horizontal line corresponding to the one above.

XXVIII.—1. Construct figure XXVI, and bisect the right vertical line.

2. One inch to the right of the bisecting point make a point, and connect the two.

3. One inch above and one inch below the right end of this horizontal line make points, and connect the two.

4. Finish the part of the figure on the right of the horizontal line to correspond with that on the left.

XXIX.—1. Draw a horizontal line one-half inch long, trisect it, and make a point two inches below the left end.

2. One inch and a half to the right of the last point make a point, and connect the two.

3. Make points in the lower horizontal line directly below the trisecting points in the upper horizontal line, and connect corresponding opposite points.

4. One-half inch above the right end of the lower horizontal line make a point, and connect with the line below.

XXX.—1. Draw a horizontal line one inch and a half long, and make a point two inches below the left end.

2. One-half inch to the right of this point make a point; connect the two, and trisect the line.

3. Make points in the first horizontal line directly above the trisecting points in the lower horizontal line, and connect corresponding opposite points.

4. Bisect the right vertical line.

5. One-half inch to the right and opposite the bisecting point, make a point and connect the two.

6. One-fourth inch above and below the right end of the horizontal line, make points and connect the two.

7. One-half inch below the right end of the upper horizontal line, make a point and connect with the line.

XXXI.—1. Construct the letter F.

2. Extend the lower horizontal line one inch to the right, and finish to correspond to the upper part of the figure.

XXXII.—1. Draw a horizontal line one-half inch long and trisect it.

2. Two inches above each trisecting point make points, and connect corresponding opposite points.

3. Make a point half-way between the upper ends of the vertical lines.

4. One inch to the right and left of this point make points and connect the two.

5. One-half inch below each end of the upper horizontal line make points, and connect each with the line.

As a review, pupils should be required to name the kinds of lines and angles in the figures drawn.

XXXIII.—1. Draw two vertical lines two inches long and two inches apart.

2. Connect the upper and lower ends.

3. Teach the definition of a *square*.

XXXIV.—1. Make points for a vertical line two inches long.

2. Two inches to the right of the first point make a point.

3. Two inches to the right of the second point make a point.

4. Connect the first two points.

5. Connect the last two points.

6. Connect the ends of the lines forming a square.

7. Bisect each line and connect corresponding bisecting points in parallel lines.

XXXV.—1. Construct a two inch square.

2. Bisect each line; bisect the parts.

3. Connect the corresponding bisecting points in parallel lines.

(THREE MONTHS.)

XXXVI.—1. Construct a two-inch square.

2. Trisect each line and connect corresponding opposite trisecting points in parallel lines.

XXXVII.—1. Construct figure XXXVI, and erase that part of each outside line between the trisecting points.

Let pupils invent additions to this figure.

XXXVIII.—1. Construct the figure given in XXXVII.

2. Bisect each line in the upper right hand square.

3. Connect corresponding bisecting points in parallel lines.

4. In like manner divide the four remaining squares.

XXXIX.—1. Draw a two-inch square and trisect each line.

2. Connect corresponding opposite trisecting points in parallel lines.

3. Erase the centre square and the outside right angle of each corner square.

Let pupils invent additions to this figure.

XL.—1. Draw a two-inch square and trisect each line.

2. Connect corresponding opposite trisecting points in parallel lines, and erase the outside angle of each corner square.
3. Bisect each line of each outside square, and connect corresponding points in parallel lines.

XLI.—1. Draw a two-inch square and bisect each line; bisect the parts, and connect corresponding bisecting points in parallel lines.

2. Erase the right three-fourths of the upper horizontal line, the right half of the second, the right fourth of the third, the upper three-fourths of the right vertical line, the upper half of the second, and the upper fourth of the third.
3. Erase the lines inside the figure.

Let pupils invent additions to this figure.

XLII.—1. Draw an inch square.

2. One-half inch to the left of the upper horizontal line make a point.
3. One-half inch above the point just made make a point.
4. Two inches below the last point make a point and connect the two.
5. Two inches to the right of the extremities of this line make points and connect, forming a square.
6. Draw a two-inch square and inside the two-inch square draw the inch square.

Let pupils invent additions to this figure.

(THREE MONTHS.)

XLIII.—1. Draw an oblong, making vertical lines one inch, and horizontal lines two inches long.

2. Teach the definition of an *oblong*, a *rectangle*, and a *parallelogram*.

XLIV.—1. Construct an oblong, making vertical lines one-half inch and horizontal lines two inches long.

2. Bisect each horizontal line; bisect the parts.
3. Connect corresponding bisecting points.
4. Divide each square into four equal parts.

5. Bisect the parts of the centre horizontal line in the left hand square.
6. One-eighth inch above and below each bisecting point make points and connect, forming a square.
7. Erase the lines found inside the square last drawn.
8. In like manner draw squares inside the remaining half-inch squares.

Let pupils invent additions to, and changes in, this figure.

XLV.—1. Draw a vertical line one inch and a half long.

2. Two inches to the right of the upper end of this line make a point, and connect with the vertical line.
3. One-half inch below the horizontal line just drawn, draw another of the same length.
4. Connect the right ends of the horizontal lines.
5. Make a point in the first vertical line one-eighth of an inch below the upper horizontal line.
6. One-half inch to the right of this point make a point, and connect the two.
7. Make a point one-half inch to the right of the lower end of the vertical line and connect.
8. Connect the right ends of the short horizontal lines.
9. One-fourth inch to the right of the left vertical line, and one-fourth inch below the upper horizontal line make a large dot.

XLVI.—1. Construct an oblong, making vertical lines one inch and a half, and horizontal lines two inches, long.

2. Make a point in each line one-eighth of an inch from each right angle.
3. Connect corresponding points in parallel lines.
4. Mark the center of each small square with a point.

XLVII.—1. Draw two vertical lines two inches long and one inch and a quarter apart, and connect the upper ends.

2. Make points in the horizontal and each vertical line one-half of one-eighth of an inch from each right angle.
3. One-half of one-eighth of an inch to the right of the lower end of the left, and to the left of the lower end of the right vertical line, make points.

4. Connect corresponding opposite points.
5. Connect the lower ends of the left vertical lines.
6. Connect the lower ends of the right vertical lines.
7. Make points in the inner vertical lines one-half inch below the upper horizontal line and one-half inch above the lower ends, and connect the opposite points.
8. Bisect the vertical lines between the horizontal lines last drawn; bisect the parts; bisect the parts again.
10. Connect corresponding points in vertical lines.
11. Make a point in the center of each small square.

- XLVIII.—1. Make points and draw two horizontal lines three inches long and one-eighth of an inch apart, and connect the ends.
2. Make a point in the lower horizontal line one-fourth inch to the right of the left end of the oblong.
 3. Two inches below this point make a point, and connect the two.
 4. One-eighth of an inch to the right draw a vertical line corresponding to the one just drawn, and connect the lower ends of the vertical lines.
 5. Draw an oblong corresponding to the one just drawn, one-fourth inch to the left of the right end of the first oblong.
 6. One-half inch below the lower horizontal line make points in the inner vertical lines, and connect the two.
 7. Make points in the second horizontal line one-fourth inch from the inner vertical lines.
 8. Directly below these points, and one-eighth of an inch above the lowest horizontal line, make points. Connect these points with points in the horizontal line.
 9. Connect the lower ends of the short vertical line.
 10. Half-way between the short vertical lines and one-eighth of an inch below the second horizontal line, make a large dot.

- XLIX.—1. Draw a horizontal line half an inch long, and trisect it.
2. Two inches above each trisecting point make points and connect corresponding opposite points.

3. Connect the upper ends of the vertical lines.
4. Four inches to the right of this figure, construct a similar figure.
5. Bisect the inside vertical lines; bisect the upper half of each vertical line.
6. Connect the last bisecting points.
7. Bisect the lower half of each inner vertical line; bisect the parts.
8. Connect the lowest bisecting points.
9. Bisect each horizontal line; bisect the parts; bisect the parts; bisect the parts.
10. Make points one-fourth inch above each bisecting point in the upper horizontal line.
11. Make points one-eighth inch below each bisecting point in the lower horizontal line.
12. Connect the corresponding points made above and below the horizontal lines.

Let pupils invent additions to this figure.

- L.—1. Draw two horizontal lines four inches and a quarter long, and two inches and a quarter apart.
2. On these lines one-eighth inch from each end, make points, and connect corresponding opposite points with heavy lines.
 3. On the vertical lines one inch above the lower, and one inch below the upper, horizontal lines, make points and connect corresponding opposite points.
 4. Bisect the second and third horizontal lines, and bisect the parts.
 5. Make points one-fourth inch to the right and left of each bisecting point, and erase the first bisecting points.
 6. Make points seven-eighths inch above and opposite the points in the third horizontal line from the bottom, and connect corresponding opposite points.
 7. Connect the upper ends of the first and second, the third and fourth, the fifth and sixth vertical lines.
 8. Make points seven-eighths inch below and opposite the points in the second horizontal line from the bottom, and connect corresponding points.

9. Connect the lower ends of the first and second, the fifth and sixth, vertical lines, and extend the third and fourth to the first horizontal line.
 10. Erase the parts of the second and third horizontal lines found outside the windows and doors.
 11. One inch above each end of the upper part of the figure, make points and connect.
 12. Connect the ends of the horizontal lines.
 13. Bisect the upper horizontal line.
 14. One-eighth of an inch to the right and left of the bisecting point, make points and erase the bisecting point.
 15. Make points one-half inch above these points and connect with the points below.
 16. Connect the upper ends of the lines.
- LL.—1. Draw two vertical lines three inches and a half long and one-half of one-eighth of an inch apart.
2. Make a point in the right vertical line one-eighth of an inch below the upper end.
 3. Three inches to the right of this point make a point, and connect the two.
 4. Make a point in the right vertical line two inches below the upper end.
 5. Three inches to the right of this point make a point, and connect the two.
 6. Connect the right ends of the horizontal lines.
 7. Bisect the vertical lines in the oblong, and connect the bisecting points.
 8. Trisect the parts, and connect the trisecting points.
 9. Bisect the parts, and connect corresponding opposite points.
 10. Add one horizontal line to the lower part of this oblong, making the space the same as the space between lines above.
 11. Extend the right vertical line to the horizontal line just drawn.
 12. Make points in the first and seventh horizontal lines one inch to the right of the second vertical line, and connect the two.

13. Erase the lines found inside the small figure, and make as many dots as there are States in the Union.
14. Connect the ends of the lines that join the staff. (Pupils have not yet had sixteenths in their number work.)

THIRD GRADE.

RIGHT LINES RELIEVED BY OBLIQUE LINES.

(FOUR MONTHS.)

- LII.—1. Construct a two-inch square.
2. Bisect each line; bisect the parts.
 3. Connect corresponding points in the upper horizontal, and the left vertical, lines; in the right vertical, and the lower horizontal, lines; in the upper horizontal, and right vertical, lines; in the left vertical, and lower horizontal, lines.
 4. Review the definition of an oblique line.
- LIII.—1. Construct a two-inch square.
2. Bisect each line; trisect the parts.
 3. Connect corresponding points in the upper horizontal, and the left vertical, lines; in the right vertical, and lower horizontal, lines; in the upper horizontal, and the right vertical, lines; in the left vertical, and the lower horizontal, lines.
- LIV.—1. Construct a two inch square, and trisect the sides.
2. Connect corresponding points in the left vertical, and lower horizontal, lines; in the upper horizontal, and right vertical, lines; in the upper horizontal, and left vertical, lines; in the right vertical, and lower horizontal, lines.
- Let pupils invent additions to this figure.
- LV.—1. Reproduce figure LIV.
2. Bisect the parts outside the trisecting points.
 3. Bisect each short oblique line.
 4. Connect bisecting points with corresponding opposite points in the square.
 5. Bisect each side of the inner square.

6. Connect bisecting points with corresponding trisecting points in the outer square.

Let pupils invent additions to this figure.

LVI.—1. Construct a two-inch square.

2. Bisect each line ; bisect the parts and erase the first bisecting points.
3. Connect corresponding points in upper horizontal, and left vertical, lines ; in right vertical, and lower horizontal, lines ; in upper horizontal, and right vertical, lines ; in left vertical, and lower horizontal, lines.
4. Erase the vertical and horizontal lines.

Let pupils invent additions to this figure.

LVII.—1. Construct a two-inch square.

2. Connect the upper right hand corner and the lower left hand corner ; the upper left hand corner and the lower right hand corner.
3. Develop the idea of, and give the term, *diagonal*.
4. Bisect each line forming the square, and connect corresponding opposite points in parallel lines.
5. Review the work on angles.
6. Erase the right half of the upper horizontal line ; the lower half of the right vertical line ; the left half of the lower horizontal line, and the upper half of the left vertical line.
7. Teach the definition of a *triangle*.
8. Teach the definition of a *right-angled triangle*.

LVIII.—1. Draw a two-inch square and trisect each line.

2. Connect the left trisecting point in the upper line and the right trisecting point in the lower line ; the right trisecting point in the upper line and the left trisecting point in the lower line.
3. In the same manner connect the trisecting points in the vertical lines.
4. Connect the left trisecting point in the upper line and the upper trisecting point in the left vertical line ; the right trisecting point in the upper line and the upper trisecting point in the right vertical line.

5. In the same way connect the lower trisecting points in the vertical lines and the trisecting points in the lower line.
6. Erase the lines forming the square.
7. Teach the definition of an *acute-angled triangle*.
Let pupils invent additions to this figure.

LIX.—1. Draw a two-inch square.

2. Bisect each line; bisect the parts.
3. Connect the left point in the upper line and the right point in the lower line; the right point in the upper line and the left point in the lower line.
4. Connect the points in the vertical lines in a similar way.
5. Connect the ends of the oblique lines as in LVIII.
6. Bisect each half of each long oblique line.
7. Connect the bisecting points in the oblique lines and the opposite bisecting points in the square.
8. Erase the lines forming the square.

Let pupils invent additions to this figure.

LX.—1. Reproduce figure XXXV, and erase the corners.

2. Bisect each line.
3. Connect the bisecting points in the first and second horizontal lines; the bisecting points in the third and fourth horizontal lines.
4. Connect the bisecting points in the first and second, the third and fourth, vertical lines.
5. Bisect the lines which bisect the small squares.
6. Connect bisecting points with corresponding opposite trisecting points.
7. Bisect each oblique line and connect with corresponding opposite bisecting points in the outside lines.
8. Erase the lines inside the small squares.
9. Trisect each side of the centre square.
10. Connect trisecting points in vertical lines and trisecting points in horizontal lines, as in LVIII.
11. Connect the bisecting points in the upper square with the opposite bisecting points in the right and left squares.
12. Connect the bisecting points in the lower square with

the opposite bisecting points in the right and left hand squares.

Let pupils invent additions to this figure.

LXI.—1. Draw a two-inch square, and bisect the horizontal lines.

2. Bisect the vertical lines; bisect the parts, and erase first bisecting points.
3. Connect corresponding opposite bisecting points in vertical lines; the upper bisecting point in the left vertical line with the lower bisecting point in the right vertical line; the upper bisecting point in the right vertical line with the lower bisecting point in the left vertical line; the bisecting point in the upper horizontal line with the upper bisecting points in vertical lines; the bisecting point in the lower horizontal line with the lower bisecting points in the vertical lines.
4. Erase the lines forming the square.
5. Teach the definition of an *obtuse-angled triangle*.

Let pupils invent additions to this figure.

(THREE MONTHS.)

LXII.—1. Construct a two-inch square, and bisect each side.

2. Draw the diagonals of the square.
3. Make points in the oblique lines one inch from the centre of the figure.
4. Connect the points in the oblique lines with the bisecting points in the square.
5. Erase the diagonals and the lines forming the square.
6. Teach the definition of an *octagon*.

LXIII.—1. Construct the octagon.

2. Connect the angles so as to form four oblongs within the octagon.
3. Erase the lines which connect the right angles with the inner octagon.

Let pupils invent additions to this figure.

LXIV.—Construct the octagon. Dictate for eight included, interlaced squares.

Dictate for Ex. 350 (1), *Smith's Manual*.

Let pupils invent many figures with the octagon for a base.

LXV.—1. Draw a horizontal line two inches long, and bisect.

2. One inch and three-fourths above the bisecting point make a point.
3. Connect this point with the ends of the horizontal line.
4. Trisect each line.
5. Make a point half-way between the upper trisecting points in the oblique lines.
6. One inch to the right and left of this point make points, and connect the two.
7. One inch and three-fourths below the bisecting point in the upper horizontal line, make a point.
8. Connect this point with the ends of the lower horizontal line.
9. Connect the ends of the horizontal lines.
10. Connect the upper part of the figure and the ends of the upper horizontal line.
11. Erase the lines inside the figure.
12. Teach the definition of a *hexagon*.

LXVI.—Dictate for figures in Ex. 356, *Smith's Manual*.

Lead pupils to invent new figures based on the hexagon.

LXVII.—1. Draw a three-inch square.

2. In each line, one-half inch from each right angle, make a point.
3. Connect the right point in the upper horizontal line and the lower point in the left vertical line; the upper point in the right vertical, and the left point in the lower horizontal, line; the upper point in the left vertical, and the right point in the lower horizontal, line; the left point in the upper horizontal, and lower point in the right vertical, line.
4. Erase the right angles.
5. Bisect the outer lines, and place points outside the figure three-eighths of an inch from each bisecting point.

6. Trisect the outer lines of the figure, and erase the parts between trisecting points.
7. Connect the trisecting points and the opposite points outside the figure.
8. In each oblique line one inch from the outer lines, make points.
9. Bisect the centre square, and connect with corresponding opposite points in oblique lines.
10. Erase the parts of the oblique lines between points.

LXVIII.—Dictate for figures in Exercises 38, 40, 41 and 354 (3 and 4), *Smith's Manual*.

(THREE MONTHS.)

- LXIX.—1. Draw an oblong making vertical lines three inches and a half long, and horizontal lines one inch and a half long.
2. On each vertical line, one-fourth inch below the upper horizontal line, and one-half inch above the lower horizontal line, make points, and connect corresponding opposite points.
 3. On the inner horizontal lines, one-fourth inch from each vertical line, make points, and connect corresponding opposite points.
 4. Erase the parts of the horizontal lines outside of, and connected with, the oblong just formed.
 5. Bisect the horizontal lines of the inner oblong.
 6. One-eighth of an inch to the right and left of each bisecting point, make points, and erase bisecting points.
 7. Connect corresponding opposite points.
 8. Bisect the second and fifth vertical lines.
 9. Bisect the lower halves, and connect the two.
 10. Bisect the vertical lines between the line just drawn and the bisecting points above.
 11. Erase the parts of the second, third, fourth and fifth horizontal lines between the third and fourth vertical lines; the second, third, fourth and fifth vertical lines between the third and fourth horizontal lines.

12. In the upper left hand panel, one-half of one-eighth of an inch from each right angle, make points, and connect corresponding opposite points, forming an oblong.
 13. Finish the remaining panels to correspond with the first.
 14. One inch and three-eighths above the lower horizontal line, and one-eighth inch to the left of the right vertical line, make a large dot.
 15. One-fourth inch above the extremities of the outer vertical lines make points.
 16. One-fourth inch to the left of the left point, and to the right of the right point, make points, and connect the two.
 17. One-fourth inch from the extremities of the lower horizontal line make points, and connect with the line above.
 18. One-half of one-eighth of an inch from the vertical and horizontal lines last drawn, draw corresponding lines.
- LXX.—1. Draw an oblong, making vertical lines four inches long and horizontal lines two inches long.
2. In each line, one-fourth inch from each right angle, make points.
 3. Connect corresponding opposite points in parallel lines. Extend the lower horizontal line one-eighth of an inch from each vertical line.
 4. Trisect the parts of the horizontal lines between the vertical lines, and connect the outer trisecting points.
 5. Trisect the parts of the inner vertical lines between the upper horizontal lines, and connect the upper trisecting points.
 6. In the lower part of the figure, one-half of one-eighth of an inch above the extremities of the second horizontal line, make points, and connect the two. Connect the ends of the horizontal lines.
 7. Erase the parts of the third and fourth vertical lines between the first and third, the fourth and sixth, horizontal lines.
 8. Bisect the inner vertical lines, and connect the bisecting points.

9. One-eighth inch above bisecting points make points and connect.
10. One-eighth inch below the third horizontal line in the inner vertical lines, make points and connect the two.
11. One-eighth inch above the third horizontal line in the lower part of the figure, make points in the inner vertical lines and connect the two.
12. Bisect the fourth and seventh horizontal lines.
13. To the right and left of the bisecting points make points, and draw vertical lines one-half of one-eighth of an inch apart.
14. One-half of one-eighth of an inch to the right of the third vertical line, and to the left of the fourth vertical line, make points in the fourth and seventh horizontal lines and connect corresponding points.
15. Erase the vertical lines between the fifth and sixth horizontal lines.

LXXI.—1. Draw figure LXX.

2. In the upper part of the figure bisect the parts of the third horizontal line between the second and third, and the eighth and ninth, horizontal lines.
3. One inch and a half below each point make points and connect corresponding opposite points.
4. Connect the lower ends of the vertical lines and draw a line parallel to the one just drawn, one-half of one-eighth of an inch above it.
5. Erase all the lines inside the oblong just made.
6. Trisect the space between the second and third horizontal lines, placing the points directly above the inch and a half vertical lines.
7. Connect corresponding opposite trisecting points, and extend the inch and a half vertical lines to the upper horizontal line.

Review the work of the entire grade.

Let pupils invent additions to the figures when practicable..

FOURTH GRADE.

STRAIGHT LINES RELIEVED BY CURVE LINES.

(FOUR MONTHS.)

- LXXII.—1. Draw a horizontal line one inch long and bisect it.
2. One-fourth inch above the bisecting point make a point.
3. Connect the ends of the horizontal line by a curve line passing through the point above the line.
4. Review definition of a *curve line*.
5. Draw a figure like the last inverted.
- LXXIII.—1. Draw a horizontal line two inches long and bisect it.
2. One-half inch above the bisecting point make a point.
3. Connect the ends of the horizontal line by a curve line passing through the point above the line.
4. Draw a figure like the last inverted.
- LXXIV.—1. Draw a horizontal line one inch long; bisect.
2. One-half inch above the bisecting point make a point.
3. Connect the ends of the horizontal line by a curve line passing through the point above the line.
4. Draw a figure like the last inverted.
- LXXV.—1. Draw a horizontal line two inches long and bisect it.
2. One inch above the bisecting point make a point.
3. Connect the ends of the horizontal line by a curve line passing through the point above the line.
4. Draw a figure like the last inverted.
- LXXVI.—1. Draw a horizontal line four inches long and bisect it.
2. Make points one-half inch, one inch, one inch and a half, and two inches, respectively, above the bisecting point.
3. Connect the ends of the horizontal line by curve lines passing through the points above the line.
4. Draw a figure like the last inverted.

LXXVII.—Follow the directions given in LXXII, substituting *vertical* for *horizontal*, and *left* for *above*.

LXXVIII.—Follow the directions given in LXXIII, substituting *vertical* for *horizontal*, and *left* for *above*.

LXXIX.—Follow the directions given in LXXIV, substituting *vertical* for *horizontal*, and *left* for *above*.

LXXX.—Follow the directions given in LXXV, substituting *vertical* for *horizontal*, and *left* for *above*.

LXXXI.—Follow the directions given in LXXVI, substituting *vertical* for *horizontal*, and *left* for *above*.

LXXXII.—1. Draw a horizontal line one inch long and bisect it.

2. One-half inch above and below the bisecting point, make points.

3. Begin at the left end of the horizontal line and draw a curve line passing through the points above and below the line and touching each end of the line.

4. Teach definition of a *circle*.

5. Teach definitions of *circumference* and *diameter*.

LXXXIII.—Draw a circle two inches in diameter.

LXXXIV.—Draw a circle four inches in diameter.

LXXXV.—1. Draw a horizontal line one inch long and bisect it.

2. One-fourth inch above and below the bisecting point, make points.

3. Begin at the left end of the horizontal line and draw a curve line passing through the points above and below the line and touching each end of the line.

4. Teach the definition of an *ellipse*.

5. Draw a corresponding figure on a vertical line.

LXXXVI.—Repeat LXXXV, making lines two inches long and placing points one-half inch above and below bisecting points.

Draw a corresponding figure on a vertical line.

LXXXVII.—Repeat LXXXV, making lines four inches long and placing points one inch above and below the bisecting point.

Draw a corresponding figure on a vertical line.

LXXXVIII.—1. Draw a vertical line one inch long and trisect it.

2. One-third inch to the right and left of the upper trisecting point make points.

3. Begin at the upper end of the vertical line and draw a curve line passing through the points at the right and left of the vertical line and touching each end of the line.

4. Teach the definition of an *oval*.

5. Draw a corresponding figure on a horizontal line.

LXXXIX.—Repeat LXXXVIII, making lines two inches long, and placing points two-thirds of an inch to the right and left of the upper trisecting point.

Draw a corresponding figure on a horizontal line.

XC.—Repeat LXXXVIII, making lines four inches long and placing points one inch and one-third to the right and left of the upper trisecting point.

Draw a corresponding figure on a horizontal line.

(THREE MONTHS.)

XCI.—1. Draw a horizontal line one inch long and bisect it.

2. One-fourth inch above the right and left ends of the line make points.

3. Connect the points by a curve line passing through the bisecting point.

4. Draw a corresponding curve below a horizontal line.

5. Draw corresponding curves above and below a line.

XCII.—1. Draw a horizontal line two inches long and bisect it.

2. One-half inch above the right and left ends of the line make points.

3. Connect the points by a curve line passing through the bisecting point.

4. Draw a corresponding curve below a horizontal line.

5. Draw corresponding curves above and below horizontal lines.

XCI.—Follow the directions given in XCI, placing points one-half inch from the extremities of the line.

Teach the definitions of *right curve*, *left curve*.

XCIV.—Follow the directions given in XCII, placing points one inch from the extremities of the line.

XCV.—Follow the directions given in XCI, substituting *vertical* for *horizontal*.

XCVI.—Use vertical lines and give work corresponding to XCIII.

XCVII.—Use vertical lines and give work corresponding to XCII.

XCVIII.—Use vertical lines and give work corresponding to XCIV.

XCIX.—1. Draw a horizontal line one inch long.

2. One-half inch above and below the ends of the horizontal line make points.

3. Connect the right end of the horizontal line and the upper left hand point by a line curving toward the horizontal line.

4. Connect the right end of the horizontal line and the lower left hand point by a line curving toward the horizontal line.

5. Teach the definition of a *convex angle*.

6. In the same way connect the left end of the line and the points at the right, forming a convex angle.

7. Teach the definition of a *concave angle*.

C.—Use vertical lines and give work corresponding to XCIX.

CI.—1. Draw a horizontal line one inch long.

2. Place points one-half inch above and below the extremities of the line.

3. Connect the right end of the line and the left hand points by lines curving from the horizontal lines, forming a concave angle.

4. Connect the left end of the line and the right hand points, forming a concave angle.

CII.—Use vertical lines and give work corresponding to CI.

CIII.—1. Draw a two-inch square.

2. Bisect the vertical lines and connect the bisecting points, and the horizontal lines *a*, *b* and *c*.
3. Bisect *a* and *c*; bisect the parts and connect corresponding bisecting points.
4. Connect the points found on *b* by curve lines with the points diagonally opposite on *a* and *c*, respectively, forming concave angles at *b* and convex angles at *a* and *c*.

CIV.—Let pupils invent additions to, and changes in, CIII.

CV.—1. Draw a horizontal line two inches long, bisect it, and bisect the parts.

2. One-eighth inch above the left bisecting point and one-eighth inch below the right bisecting point make points.
3. Connect the ends of the line by a curve line passing through the points above and below the line and crossing the centre point.
4. Draw a figure like the last inverted.
5. Teach the definition of a *compound curve*.
6. Draw compound curves above and below the same line.

CVI.—Follow the directions given in CV, placing points one-fourth inch above and below the bisecting points.

CVII.—Follow the directions given in CV, placing points one-half inch above and below bisecting points.

CVIII.—Do work corresponding to CV, using vertical lines.

CIX.—Do work corresponding to CVI, using vertical lines.

CX.—Do work corresponding to CVII, using vertical lines.

CXI.—1. Draw a horizontal line two inches long; bisect; bisect the parts; bisect the parts.

2. One-eighth inch above the first and fifth bisecting points, and one-eighth inch below the third and seventh bisecting points, make points.
3. Connect the ends of the line by a double compound curve crossing the second, fourth and sixth bisecting points and passing through the points above and below the line.
4. Draw the figure, placing points below the first and fifth bisecting points and above the third and seventh.

5. Draw the double compound curve as given above on the same line.

CXII.—1. Draw a vertical cross, using four inch lines.

2. Draw double compound curves each side of the line as in CXI.

CXIII.—1. Draw a horizontal line two inches long and bisect it.

2. Bisect the left half and trisect the right half of the line.
3. One-fourth inch above the left bisecting point, and one-eighth inch below the left trisecting point, make points.
4. Connect the ends of the line by a line crossing the horizontal line at the centre bisecting and right trisecting points, and passing through the points above and below the line.
5. Draw the above figure, placing points below the left bisecting and above the left trisecting points.
6. Draw lines above and below the same straight line corresponding to those just drawn.

CXIV.—Do work corresponding to CXI, using vertical lines.

CXV.—Do work corresponding to CXIII, using vertical lines.

CXVI.—1. Construct figure VII.

2. Divide the angles into two equal parts by oblique lines the same length as the other lines.
3. Draw compound curves as in CV and CVI.

(THREE MONTHS.)

APPLICATIONS OF CURVE LINES.

CXVII.—1. Construct figure XXXIV.

2. Connect the outer bisecting points in the upper horizontal line by a curve line passing through the point below the bisecting point, forming a half circle.
3. In a similar way draw half circles upon the remaining sides of the square.
4. Connect the extremities of the curves by lines curving toward the centre of the figure.

5. Inscribe a circle within the four central squares.

Let pupils invent many additions to this figure.

CXVIII.—1. Construct figure VII and connect the extremities of the lines, forming a square.

2. Bisect each side and make points within the figure one-fourth inch from each bisecting point.

3. Bisect the parts and erase that part of each line between bisecting points.

4. Connect the lines by curve lines passing through the points within the figure.

5. One-fourth inch from the centre of the figure make points in each line and connect points by lines curving toward the centre of the figure.

Let pupils invent many additions to this figure.

CXIX.—1. Construct figure XXXV.

2. Draw the diagonals in each corner square.

3. Draw a compound curve each side of each diagonal.

4. Bisect each side of the remaining squares ; connect corresponding opposite points in parallel lines in the outside squares and draw a compound curve each side of each line.

5. Make points within the centre square one-eighth of an inch from each bisecting point and connect the angles by curve lines passing through the points within the square.

Let pupils invent many additions to this figure.

CXX.—1. Draw an oblong, making horizontal lines four inches long and vertical lines one inch and a half long.

2. Bisect the horizontal lines ; bisect the parts ; bisect the parts and connect corresponding opposite bisecting points.

3. On each vertical line one fourth inch from each angle make points ; connect corresponding opposite points and erase the outside horizontal line in the lower part of the figure.

4. One-half inch above each vertical line make points.

5. Connect the first and third vertical lines by a curve line passing through the point above the second vertical

line; the second and fourth by a curve line passing through the point above the third; the third and fifth by a curve line passing through the point above the fourth vertical line, etc.

Let pupils make many additions to this figure.

CXXI.—1. Draw an octagon and allow the construction lines within the figure to remain.

2. Bisect each semi-diameter, and draw a double compound curve as in CXI.
3. Draw a circle having the circumference pass through the points of bisection.
4. Bisect each side of the octagon and make points within the figure one-eighth inch from each bisecting point.
5. Connect the angles by curve lines passing through the points placed opposite the bisecting points in the sides of the figure.

Let pupils invent additions to, and changes in, this figure.

CXXII.—1. Draw an octagon and bisect each semi-diameter.

2. On the vertical line begin at the top and place points for the double compound curve first at the left, then at the right, etc.
3. For the double compound curve on the horizontal line begin at the left and place points first below and then above the line, etc.
4. For the double compound curves on the oblique lines place points at the right, then at the left. Draw the double compound curves.
5. Bisect each side of the octagon and make points within the figure one-half inch from each bisecting point.
6. Connect the points and corresponding opposite angles by curve lines, forming convex angles.
7. Bisect each side of the convex angles and connect the bisecting points with corresponding opposite points in the octagon, forming convex angles.

Let pupils make changes in, and additions to, this figure.

CXXIII.—1. Construct the figure given in LXIII.

2. Bisect the sides of the triangles which form the right angles, and place points within the triangles one-eighth inch from each bisecting point.
3. Connect each right angle with the opposite acute angles by curve lines passing through the points within the triangles.
4. Inscribe a circle within the figure the circumference of which shall touch each right angle.
5. Bisect each side of the inner octagon; place points within the octagon one-sixteenth inch from each bisecting point, and connect the angles by curve lines passing through the points within the figure.

Let pupils invent changes in this figure.

CXXIV.—1. Construct a hexagon and through the centre draw lines connecting the opposite angles.

2. Bisect each semi-diameter and connect the bisecting points, forming a hexagon.
3. Circumscribe each hexagon.

Let pupils invent additions to this figure.

CXXV.—1. Construct a hexagon, complete the included double equilateral triangle, and allow the construction lines within the figure to remain.

Teach the definition of an *equilateral triangle*.

2. Connect the angles of the outer hexagon by curve lines passing through the angles of the inner hexagon.
3. Bisect each side of the inner hexagon and make points within the hexagon one-eighth inch from each bisecting point.
4. Connect the angles by curve lines passing through the points within the figure.
5. Connect the angles of the inner hexagon, as in CXXIV, and bisect each semi-diameter.
6. Inscribe a circle having the circumference pass through the bisecting points.
7. Draw a line circumscribing the figure.

Let pupils make additions to this figure.

CXXVI.—1. Construct a circle whose diameter is four inches.

2. Draw the diameter of the circle and bisect.

3. Trisect each semi-circumference and connect corresponding opposite trisecting points by lines passing through the centre of the figure.
 4. Bisect each semi-diameter and place points one-fourth inch each side of each bisecting point.
 5. Draw a compound curve on each side of each line, passing through the points opposite the bisecting points.
- Let pupils make additions to this figure.

CXXVII.—1. Construct figure CXXVI and connect the extremities of the diameters, forming a hexagon.

2. Bisect each side of the hexagon and place points within the figure one-fourth inch from each bisecting point; connect the extremities of the diameters by curve lines passing through the points within the figure.
3. Erase all the straight lines within the figure.

Let pupils invent additions to, and changes in, this figure.

CXXVIII.—1. Draw two horizontal lines one inch and three-fourths long and one-fourth inch apart; connect the ends.

2. On the upper horizontal line one-eighth inch from each extremity make points.
3. Two inches above each of these points make other points and connect with the points below.
4. On the vertical lines one-half inch from the lower extremities make points and connect.
5. Bisect each side of the square.
6. Within the figure one-eighth inch from each point make a point; connect the points within the figure, forming an octagon.
7. Connect the right trisecting point in the upper horizontal line with the upper trisecting point in the right vertical line; the left trisecting point in the upper horizontal, and the upper trisecting point in the left vertical, line and erase the corner lines.
8. Mark the centre of the octagon and extend the vertical lines to the horizontal line first drawn.
9. Extend the lower horizontal line of the octagon each way to meet the vertical lines just drawn.

10. Erase the parts of the third horizontal line between the outer and inner vertical lines.
11. On the same line one-eighth inch from each end make points ; one-eighth inch below these points make points and connect the two.
12. One-fourth inch below this line draw a line the same length and connect the ends, forming an oblong.
13. One-half inch to the right and left, above and below the point in the centre of the octagon, make points and draw a circle.
14. Inside of this circle draw another one-eighth inch from the first.
15. Bisect the inner circle ; bisect the parts, and place the numbers XII, III, VI and IX, within the circle and opposite the bisecting points.
16. Trisect the parts between bisecting points and place the remaining numbers.
17. One-fourth inch from the centre, and in the direction of the number VI, make a point and connect with the centre.
18. Three-eighths inch from the centre, and in the direction of a point half-way between I and II, make a point and connect with the centre.

Let pupils invent many additions and changes.

FIFTH GRADE.

CURVE LINES APPLIED.—CONTINUED.

(FOUR MONTHS.)

CXXIX.—Dictate Exercise 54, *Smith's Manual*.

Let pupils invent additions and changes.

CXXX.—Dictate Exercises 57, 58, 64, 69, 86, 87, 88, 89, 94, 95, 96, *Smith's Manual*.

Let pupils invent changes and additions.

(THREE MONTHS.)

CXXXI.—Dictate Exercises 97, 98, 99, 100, 103, 107, 108, 109, 110, 111, 112, 113, 117, 124, 123, 119, 121, *Smith's Manual*.

Let pupils invent changes and additions.

(THREE MONTHS.)

CXXXII.—Dictate Exercises 131, 132, 133, 134, 135, 136, 141, 142, 143, 144, 145, 146, 156, 157, 158, *Smith's Manual*.

Let pupils invent changes and additions.

SIXTH GRADE.

CURVE LINES APPLIED.—CONTINUED.

(FOUR MONTHS.)

CXXXIII.—Dictate Exercises 159, 160, 167, 168, 169, 170, 171, 172, 175, 177, 203, 204, 205, 207, 208, 209, 211, 213, 215, 216, 217, 218, 219, 220, *Smith's Manual*.

Let pupils invent changes and additions.

(THREE MONTHS.)

CXXXIV.—Dictate Exercises 221, 222, 223, 224, 227, 229, 228, 231, 232, 233, 234, 237, *Smith's Manual*.

Let pupils invent changes and additions.

(THREE MONTHS.)

CXXXV.—Dictate Exercises 242, 240, 239, 244, 245, 246, 247, 249, 250, 251, 252, 253, 254, 256, 257, *Smith's Manual*.

Let pupils invent changes and additions.

SEVENTH GRADE.

PERSPECTIVE.

(FOUR MONTHS.)

Have pupils do the work suggested in *Krüsi's Hand-Book of Perspective Drawing*, page 15 to page 21.

Have definitions of the following given as required: *a solid, a surface, a plane, perspective.*

I.—1. Draw a horizontal line the length of the paper and bisect it.

2. Two inches and a half below the point make a point and connect the two.
3. One inch and a half to the left of the vertical line draw an inch and a half square, the lower side to be two inches and a half below the first line.
4. Connect the angles of the square with the upper extremity of the vertical line at the right.
5. One-half inch above the lower extremity of the right vertical line in the square make a point. On the line at the right and opposite the point just made make a point.
6. From this point draw a vertical line to meet the line above.
7. From the upper extremity of this line draw a horizontal line to meet the line at the left.
8. Erase the lines which connect the vertical and horizontal lines last drawn with the right vertical line.

Show pupils a cube; let them compare it with the representation and notice the position.

Teach the definition of a *cube*.

- II.—Have pupils draw cubes representing the object at the right and below the centre of vision.
- III.—Have pupils draw cubes representing the object in front and below the centre of vision.
- IV.—Have pupils draw cubes representing the object at the left and above the centre of vision.
- V.—Have pupils draw cubes representing the object at the right and above the centre of vision.
- VI.—Have pupils draw cubes representing the object in front and above the centre of vision.

Show pupils what is meant by the *Vanishing Point*.

Pupils will discover that a change in the position of the object or in the *point of view* involves a change in the direction of the lines uniting in the vanishing-point, and in the distance of the vanishing-point. Pupils will also discover that the receding lines of figures drawn will converge in the vanishing-point.

- VII.—Dictate Exercise 7, *Smith's Perspective Drawing*, No. 1, and have pupils learn definitions of the following: *The Horizontal Line; The Centre of Vision; The Station Point; The Line of Direction; The Picture Line; The Field of Vision; the Measuring, or Distance, Points.*
- VIII.—Dictate Exercise 8, *Smith's Perspective Drawing*, No. 1.
- IX.—Dictate Exercise 18, *Smith's Perspective Drawing*, No. 1. Many similar lists should be given.
- X.—Dictate Exercise 22, *Smith's Perspective Drawing*, No. 1, and have pupils learn definitions of the following: *The Ground Plane; the Picture Plane, Horizontal Plane; Vertical Plane.*
- XI.—Dictate Exercise 9, *Smith's Perspective Drawing*, No. I.
- XII.—Dictate Exercise 17, *Smith's Perspective Drawing*, No. 1. Many similar tests should be given.
- XIII.—Dictate Exercise 11, *Smith's Perspective Drawing*, No. 1.
- XIV.—Dictate Exercise 20, *Smith's Perspective Drawing*, No. 1. Many similar tests should be given.
- XV.—Draw H. L., and fix the point C. V.; draw L. of D. and P. L., as in Exercise 23, *Smith's Perspective Drawing*, No. 1. Find V. P.'s and M. P.'s of V. P.'s. On L. of D. one inch above point *a* on P. L. make point *b*. Connect extremities of line *a b* with V. P.'s. From point *a* measure one inch to right on P. L. to point *c*, and one inch to left to point *d*. Connect point *d* with M. P. on right of C. V., and point *c* with M. P. on left of C. V. Designate point of intersection of *d* M. P. with *a* V. P. as *e*, and point of intersection of *c* M. P. with *a* V. P. as *f*. From points *e* and *f* draw vertical lines to the lines *b* V. P. Connect the upper extremity of the left vertical line with V. P. on the right of C. V. and the upper extremity of the right vertical line with V. P. on left of C. V. Erase all lines not forming outline of cube.

Place a cube in corresponding position and have pupils compare with figure drawn.

Teach definition of *Parallel Perspective*; of *Angular Perspective*.

Have pupils practice drawing, in parallel and angular perspective, cubes of different sizes and in different positions, till they can do so readily and accurately without using construction lines.

XVI.—1. Construct figure I, and bisect the vertical lines of the square not in perspective.

2. Connect the bisecting points.

3. Connect the right end of horizontal line with vanishing point.

4. Erase the lower half of figure and the part of line just drawn between vanishing point and right vertical line.

Teach the definitions of *base*, *prism*, and *rectangular prism*.

XVII.—Dictate directions for drawing the prisms in Exercises 24, 25, and 26, *Smith's Perspective Drawing*, No. 1.

XVIII.—Dictate directions for drawing a dictionary.

Dictate directions for drawing a table.

Let pupils draw other books and tables from memory or imagination.

(THREE MONTHS.)

XIX.—Dictate Exercises 29 and 30, *Smith's Perspective Drawing*. No. 2. Many tests should be given.

XX.—Dictate directions for drawing a triangular prism.

Teach the definition of *a triangular prism*.

Have triangular prisms drawn in different positions and of different sizes.

XXI.—Dictate directions for drawing a hexagonal prism.

Teach the definition of *a hexagonal prism*.

Have hexagonal prisms drawn in different positions and of different sizes.

XXII.—Dictate directions for drawing pyramids in Exercise 24, *Smith's Perspective Drawing*, No. 1, and in Exercise 31, *Smith's Perspective Drawing*, No. 2.

Teach the definition of *aper*; of *pyramid*; of *rectangular pyramid*.

XXIII.—Dictate directions for drawing a triangular pyramid.

Teach the definition of a *triangular pyramid*. Have pupils draw triangular pyramids in different positions and of various sizes.

XXIV.—Dictate directions for drawing a hexagonal pyramid.

Teach definition of a *hexagonal pyramid*.

Have hexagonal pyramids drawn in various positions and of varying sizes.

XXV.—Dictate Exercise 33, *Smith's Perspective Drawing*, No. 2.

XXVI.—Dictate Exercise 28, *Smith's Perspective Drawing*, No. 1.

XXVII.—Dictate Exercise 34, *Smith's Perspective Drawing*, No. 2.

Teach definition of a *cone*.

Have pupils draw cones in different positions and of varying sizes.

Give pupils much practice in drawing pails, tubs, and other articles having the form of truncated cones.

XXVIII.—Dictate directions for drawing a cylinder.

Teach definition of a *cylinder*.

Have pupils draw cylinders in different positions and of different sizes.

Give pupils much practice in drawing boxes, measures, as peck-measures, half-bushel-measures, etc., and other articles having the form of cylinders.

(THREE MONTHS.)

XXIX.—Dictate Exercises 35, 37, 38, 40 and 41. *Smith's Perspective Drawing*, No. 2.

Review the work of the Grade.

EIGHTH GRADE.

(FOUR MONTHS.)

In the following work the directions for drawing are to be developed after the pupils have studied the objects.

XXX.—Draw twelve pictures from objects placed before the pupils; as, lamps and chimneys, vases, urns, coal-hods, pitchers and goblets.

Let pupils invent ornamentations to embellish these figures.

(THREE MONTHS.)

Have pupils decide upon the directions for drawing in each case before the work is begun.

XXXI.—Draw twelve pictures from objects placed before the pupils; as, barrels, tubs, measures, tables, chairs, urns, wash-bowls and pitchers.

Let pupils invent ornamentations to embellish these.

(THREE MONTHS.)

Let pupils draw groups of objects; as, a pitcher and goblets, a pile of books, etc. At least six such pictures must be made this term.

NINTH GRADE.

(FOUR MONTHS.)

In the following work the teacher is not expected to dictate as minutely as heretofore, but will illustrate on the board.

Dictate Exercises 270, 271, 272, 273, *Smith's Manual*.

Let pupils invent additions to the above figures and other similar figures.

Dictate Exercises 274, 275, 276, *Smith's Manual*.

Require pupils to observe patterns of carpets and wall-paper, and invent at least *five* designs.

(THREE MONTHS.)

Dictate Exercises 285, 286, 293, 296, 299, 301, 302, 304, 306, 340, 341, *Smith's Manual*.

Let pupils draw pictures of leaves of many kinds. The objects should be well studied and the proportions of the pictures determined before work with the pencil is begun.

(THREE MONTHS.)

Let pupils draw an original plan for a gate, a fence, a vase, a chandelier, a cornice, an urn, a group of measures, a pile of books.



COURSE OF STUDY

IN THE

HIGH SCHOOL.

FIRST YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Algebra, Latin, Praxis, Spelling, German—Optional.	Algebra, Latin, Praxis, Spelling, German—Optional.	Algebra, Latin, Praxis, Spelling, German—Optional.

SECOND YEAR.

Algebra, Latin, Praxis, Spelling, Botany—3 mos., German—Optional.	Algebra, Latin, Praxis, Spelling, Arithmetic, German—Optional.	Geometry, Latin, Praxis, Spelling, Mod. Europ'n Hist'y, German—Optional.
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THIRD YEAR.

Geometry, Latin, Praxis, Spelling, Natural Philosophy, German—Optional.	Geometry, Latin, Praxis, Spelling, Natural Philosophy, German—Optional.	Trigonometry, Latin, Praxis, Spelling, Middle-Age History German—Optional.
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FOURTH YEAR.

Trigonometry, Latin, English Literature, Ancient History, German—Optional.	Chemistry, Latin, English Literature, Science of Govern't, German—Optional.	Geology, Latin, English Literature, German—Optional.
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Rhetorical Exercises.—Declamations original and select, discussions, recitations and essays—three Friday afternoons, every month.

Vocal Music.—Three half-hour exercises weekly.

 P P E N D I X .

SCHEDULE OF TIME FOR GENERAL LESSONS.

FIRST GRADE.

One week.—Show pupils how to use slates and pencils.
Assist them in learning to write.

Five weeks.—Plants—leaves.

Six weeks.—Human body—head, trunk.

Ten weeks.—Animals—Ungulata.

Three weeks.—General review.

Six weeks.—Human Body—upper extremities, lower extremities, and review of first grade work.

Four weeks.—Animals—Carnivora.

Five weeks.—Plants—stems, roots, review of first-grade work.

SECOND GRADE.

Eight weeks.—Plants—review of first grade work, flowers, fruit.

Two weeks.—Human Body—review of first grade work.

Six weeks.—Human Body—digestion.

Four weeks.—Animals—Rodentia.

Three weeks.—Animals—review of Ungulata and Carnivora.

Two weeks.—General review.

Seven weeks.—Animals—Birds, Reptiles, Amphibians.

Two weeks.—Human body—circulation.

Two weeks.—Human Body—review of first and second grade work.

Two weeks.—Plants—seeds, buds.

Two weeks.—Plants—review of first and second grade work.

Six weeks.—Plants—Nutrition, kind as to structure and duration, uses, review of first and second grade work.

Eight weeks.—Human Body—First Series completed and reviewed.

Four weeks.—Animals—Fishes, Articulates, Mollusks, review of First Series.

Six weeks.—Place, *A Journey to Montgomery*. (See page 119.)

Twelve weeks.—Animals—Second Series Ruminantia.

Four weeks.—Plants—First Series completed and reviewed.

In the fourth, fifth, sixth, seventh eighth and ninth grades the general work is done as indicated below:

September and October,—Plants.

November, December, and January,—Human Body.

February,—General review of year's work.

March, April and May,—Animals.

June,—Plants.

PLAN I.

LANGUAGE.—First Series.

SINGULAR AND PLURAL FORMS.

Lead pupils to form sentences containing the singular form of the noun.

This may be done by asking pupils to tell what animal runs, plays or jumps.

Several sentences will be given similar to the following:

A dog runs. A squirrel runs. A cat plays. A lamb plays. A horse jumps. A cow jumps.

Have pupils talk about the color of different animals they have seen; as, My cat is white. John's dog is black. A red cow is in the lot. A black horse ran away.

In a similar way require pupils to name parts of animals and objects.

Lead pupils to form sentences containing the plural form of the nouns, by asking them to tell of more animals than one that run, jump or play.

Sentences like the following will be given: Horses run. Cows run. Cats play. Dogs play.

The teacher may then ask pupils to tell the color of cats and other animals; as, Cats are gray. Cats are black. Cats are white. Cats are black and white.

Pupils should be led to correct all mistakes in the use of the verb; as, He said, The boys is playing, for The boys are playing.

Train the pupils, so that when the teacher gives a sentence containing a noun and a verb in the singular, they will give a sentence containing the same noun and verb in the plural forms, and *vice versa*. The teacher says, I will say something about one and you may say the same about more than one.

Teacher.

A horse jumps.

A boy work.

A girl studies.

A girl is playing.

A horse has a mane.

Pupil.

Horses jump.

Boys work.

Girls study.

Girls are playing.

Horses have manes.

Now I will say something about more than one, and you may say the same about one.

Teacher.

Dogs bark.

Squirrels are quick.

Horses have manes.

Cows have horns.

Pupils.

A dog barks.

A squirrel is quick.

A horse has a mane.

A cow has horns.

If I talk about one, you may say the same about more than one; or, if I speak of more than one, you may make the same statement about one.

Teacher.

A boy is in the room.

Good boys study.

Cats have claws.

A book has leaves.

Pupil.

Boys are in the room.

A good boy studies.

A cat has claws.

Books have leaves.

Continue this drill until pupils answer correctly and promptly.

Lead pupils to give sentences containing a series of nouns in the singular; as, A boy, a girl, a cat and a dog run. Mary, John and Willie are good.

Lead pupils to form sentences containing a series of nouns in the plural; as, Squirrels, rabbits, cats and dogs play.

Lead pupils to combine sentences by having them tell one thing about a boy and another about a girl; as, A boy works and a girl plays. Boys study and girls work. The boy is writing and the girl is reading.

Conversational lessons of fifteen minutes in length, embodying the points in the foregoing *plan*, may be given for a period of two weeks, provided they are *made in practice* what they are called in theory, viz., *conversational lessons*.

PLAN II.

LANGUAGE.—First Series.

THE USE OF A AND AN.

In this lesson the teacher should have many objects to present to the pupils.

1. Lead pupils to form sentences in which *a* is used to limit a single noun.

The teacher places on a desk several objects whose names begin with consonants. Many pupils are required to take different objects and tell what they have. Sentences similar to the following may be obtained: I have a book. This is a slate. This is a cup. A pencil is on the desk, etc.

2. Lead pupils to form sentences in which *a* is used to limit several nouns combined.

The teacher requires a child to take several objects from the desk and tell what he has. In this way the teacher may obtain many sentences similar to the following: I have a book, a pencil, a slate, a knife and a vase. Frank gave me a cup, a cap, a bottle and a ruler.

Name four things that you saw on your way to school this morning.

I saw a horse, a cow, a cat and a dog.

Pupils should be led to correct all mistakes.

3. Lead pupils to form sentences in which *an* is used to limit a single noun.

This may be done by having pupils take objects whose names begin with vowels.

In this way a variety of sentences may be obtained; as, You have an apple. Ella has an orange. Mother gave me an ivy. The man cuts wood with an ax.

In the use of the word *an*, pupils make mistakes similar to the following: I saw a ox draw a load. John gave a apple to Frank.

4. Lead pupils to form sentences in which *an* is used to limit several nouns combined.

The teacher has pupils take certain objects and tell what they have; as, I have an apple, an ivy, an overshoe and an apron. Mary has an arm, an ear and an eye. An inkstand, an ivy, an overcoat and an orange are on the table.

Pupils correct as follows: I said *a* for *an*, or, I said *a* when I should have said *an*.

5. Lead pupils to form sentences in which *a* and *an* are used to limit nouns in the same sentence.

At first the teacher may show the objects and require pupils to tell what she has.

Many sentences should be obtained similar to the following: You have an apple, a book, an ax, a slate, an ivy and an inkstand. A knife, an apple, an orange, a pencil, a ruler, and an iron are on the table.

6. Lead pupils to give sentences rapidly. Require them to form sentences using *a* and *an* alternately, as follows: I have a book. He has an overcoat. That is a slate. This is an egg. A fish swims. An oyster lives in the water. There is an organ in the High School; the one who plays it is an organist.

Present objects and have pupils give names of them, as follows:

An apple,	An oil-can,	An orange,	A slate,
An awl,	A duck,	An egg,	An apron,
An acorn,	A pencil,	A stick,	An ink-stand.

7. In a similar way cause pupils to form sentences involving the use of the articles *a* and *an* before nouns limited by adjectives; as, John is a good boy. I saw an old man. I see an open box, an iron ring, an old book, and an oval frame.

Pupils make many mistakes in the use of the articles *a* and *an* in giving sentences and in writing them.

PLAN III.

LANGUAGE.—First Series.

THE USE OF THE ADJECTIVES GOOD, BETTER, BEST.

1. Lead pupils to form sentences containing the positive form *good*.

Show an apple and obtain a sentence similar to the following:

You have a good apple.

2. Lead pupils to form sentences containing the comparative form *better*.

Show another apple larger and better looking than the one just shown. Let pupils compare.

Have a pupil select the apple he prefers and tell the class which one he has taken.

A sentence similar to the following will be given:

I have taken the best apple.

Call upon others. If pupils fail to give the comparative form, the teacher must tell them what to say.

Question to obtain many sentences similar to the following:

I gave the better apple to Ella. Ellen is the better girl. This is the better book. I have the better pencil.

3. Lead pupils to form sentences containing the positive and comparative forms.

Have pupils take both objects and talk about them; as,
This is a good apple, but that is the better one.

My peach is good, but yours is better.

Continue this drill until pupils discover that in comparing two objects the comparative form is used.

Pupils may be led to make a statement similar to the following:

In speaking of two, we say one is good and the other is better.

4. Lead pupils to give sentences containing the superlative form.

Show a third apple larger and better than either of the first two.

As before, a child selects the one he prefers and gives reasons for making the selection.

5. Lead pupils to give sentences containing the three forms.

Have them talk about three objects and make sentences similar to the following:

That apple is good, this one is better, but that one is the best.

Lead pupils to correct mistakes.

6. Talk about more than three objects and continue the drill until pupils discover that the superlative form is always used in comparing three or more objects. Have pupils state when to use *better* and when to use *best*.

7. Teach the spelling of the three forms.

8. Drill until the pupils, after hearing one form, are able promptly to give the other two.

9. Continue this work, using different adjectives, until pupils use the different forms correctly.

PLAN IV.

LANGUAGE.—First Series.

THE USE OF THIS, THAT, THESE, AND THOSE.

To work effectively the teacher should be supplied with a variety of objects.

1. Lead pupils to give sentences containing the adjective *this*.

Question and obtain sentences similar to the following:

This book is mine. This ring is yours.

May I give this apple to Frank?

2. Lead pupils to form sentences containing the adjective *that*.

Require children to point to objects and talk about them; as,

That book on the desk is large. Ella gave that large red apple to the teacher. Where did you get that pretty flower?

3. Lead pupils to give sentences containing both adjectives; as,

This book is yours, and that one is mine.

That apple is sweet, and this one is sour.

Drill until pupils discover when to use *this* and when to use *that*.

4. Lead pupils to give sentences containing the adjective *these*.

Have a pupil take two or more objects and tell what he has done.

An answer similar to the following will be given:

I took them apples, or I gave them apples to you.

Question pupils until the correct answer is given.

Obtain many sentences similar to the following:

These books are mine. John gave these marbles to me.

May I put these spools in the box?

5. Lead pupils to give sentences containing the adjective *those*.

As before, require pupils to point to two or more objects and talk about them.

Sentences similar to the following may be obtained:

Those pictures are pretty. Bring me those large flowers.

Drill until pupils discover when to use *these* and when to use *those*.

Drill until pupils avoid the use of *them* for *these* or *those*.

Have different kinds of apples and several of each kind; also, pencils, books, etc.

Ask pupils to tell how many kinds of apples are on the table.

Have a pupil select the kind he likes best.

By requiring him to make a statement telling which kind he likes best, a sentence similar to the following will be given:

I like these kind the best.

Call upon others and, if possible, obtain the correct statement.

Have pupils point to them and tell which is large or small, green or red, etc.

Question for and obtain sentences similar to the following:

That kind of pencils is long. Can you get this kind down town? This kind of apples is red and that kind is green. I like that kind of marbles better than this kind.

Drill until pupils discover that it is wrong to say *these kind* or *those kind*.

Lead pupils to correct as follows:

He said *these kind* for *this kind*, or *those kind* for *that kind*.

PLAN V.

LANGUAGE.—First Series.

THE VERB SEE.

1. Lead pupils to form sentences involving the use of the verb *see* in the present tense.

This can be done by showing pupils an object and asking what it is, and how they know.

2. Lead pupils to form sentences containing the verb *see* in the absolute past tense.

Show an object, and then, while pupils are looking at it, put it away. Ask where it is, and how they know. Obtain many sentences similar to the following:

I saw your watch. I saw you put your watch in your pocket. I saw Mary's book. John saw Henry last night. The teacher saw you whisper. I saw him playing in the school-yard. I saw him on the grass in the front yard.

3. Lead pupils to form sentences containing the verb *see* in the relative present tense.

Talk with pupils about some object which they have seen, and ask them how they know how it looks. Many sentences similar to the following may be obtained:

I have seen it. I have seen an elephant. I have seen your sister, etc.

How does Ella know about these objects that we have been talking about?

She has seen them. Ella has seen an elephant, etc.

Write two sentences on the board, one containing *has seen* and the other *have seen*. Pupils read the sentences.

4. Lead pupils to form sentences containing the verb *see* in the relative past tense.

Show an object and talk with pupils about it. Ask how many knew it before, and how they happened to know it.

I knew it because I had seen it.

Obtain many sentences, and write one on the board.

Pupils now say, We use the words *have*, *has* and *had* with *seen*; or, With *seen* use *have*, *has* and *had*.

5. Drill pupils in giving the parts until, when the teacher gives one part, the pupils will give the other two.

I will give one part and you may give the other two.

Teacher.

Pupil.

See,

Saw, seen.

Saw,

See, seen.

Seen,

See, saw.

When I give a sentence containing one part of the word, you may give a sentence containing the other parts.

Teacher.

I see a girl.

I saw a horse.

I have seen an apple.

Pupil.

I saw a girl.

I have seen a girl.

I see a horse.

I have seen a horse.

I see an apple.

I saw an apple.

Continue to drill until pupils understand and can give the parts of the verb *see* correctly.

A similar plan for other irregular verbs may be followed.

PLAN VI.

LANGUAGE.—Second Series.

THE SENTENCE.

The teacher comes before the class with a number of objects in hand; as, a book, an apple and a pencil.

Tell me what I have here.

An apple, a book and a pencil.

Look at these and tell me something about them.

After the pupils have given many sentences, the teacher selects, we will suppose, the following:

The pencil has a point.

NOTE.—As much tact is required on the part of the teacher in selecting the most appropriate sentence as in any other part of the work.

NOTE.—Pupils spell all words and teacher writes them on the board.

The teacher, now holding the pencil before the pupils and requiring their close attention, continues:

What was the first thing I did in this lesson?

You showed us a book, an apple and a pencil.

What did I do next?

You told us to look at them and say something about them.

What then did you do?

We looked at them.

What next?

We said something about them.

Did you not *do* something before you talked?

(Children think:—hands are raised.)

We thought.

Yes, that is right; you thought.

NOTE.—Let the whole class repeat and spell the word *thought*.

What did you do after you thought?

We told you what we thought.

How did you tell me what you thought?

We told you promptly.

What did you use when you told me what you thought?

We used our tongues.

NOTE.—It will be noticed that the last two answers are not wanted. Such replies must be expected, however, and may be met by the teacher in some way like the following:

What else did you use when you told me what you thought.

We used words.

That is what I wanted you to say.

NOTE.—All repeat and spell *we used words*.

The teacher now refers to the sentence as seen upon the board, viz: The pencil has a point.

What are these upon the board?

Words.

What do they do?

They tell a thought.

NOTE.—When the pupils are slow to answer, a rapid review of the few previous points gained will seldom fail to secure the desired reply.

Because they tell a thought, what may we call this whole group of words?

The telling of a thought.

The telling of a thought how?

By words.

What, then, may we call the whole group of words?

The telling of a thought by words.

Who can give me a word to use instead of telling? (Hands raised.)

Showing.—Saying.

I will give it.—Expression.

Tell me what this is on the board and use the new word.

The expression of a thought by words.

(Pupils repeat and spell.)

By what other name may this group of words be called?

A sentence.

NOTE.—Pupils will not fail to give the word *sentence*; they have had it many times in their reading exercises.

Now tell me what a sentence is and say the word *sentence* last.

The expression of a thought by words is a sentence.

NOTE.—Pupils spell words, and, after individual repetitions, the teacher writes the definition on the board.

Let pupils make five other sentences about the pencil or other objects in the school-room. The teacher writes them on the board. The words should all be spelled by the pupils.

PLAN VII.

LANGUAGE.—Second Series.

THE PLURAL OF NOUNS—GENERAL LAW.

Lead pupils

1. To give nouns denoting one.
2. To change them so that they will denote more than one.
3. To state the different uses of the two forms.
4. To note the difference in the sounds of the two words.
5. To find on the printed page the manner of representing this difference.
6. To name and define each form.
7. To state and write the law for writing the plural form.
8. TO PRACTICE.

PLAN VIII.

LANGUAGE.—Second Series.

THE PLURAL FORM OF NOUNS—SPECIAL LAW NUMBER ONE.

Let pupils spell words in both forms, both by sounds and by letters; let them state the exact difference in each case.

Pronounce a word ending, in the singular, with one of the sounds represented by *s*, *z*, *sh*, *zh*, *ch* (as in church), or *j*, and let the pupils

1. Pronounce it.
2. Change it, so that it shall denote more than one.
3. Spell both words by sounds.
4. State the difference between the sounds of the two words.
5. Discover that the difference involves an extra impulse of the voice (syllable).
6. Discover, by giving the sounds of the words, why an additional syllable is necessary.
7. Determine, without reference, how to represent that difference.

In a similar manner, let pupils dispose of many words ending in sounds as above, after which let them

1. Give law just learned and associate it with that previously learned.
2. Practice by writing sentences in which these words occur in both forms.

PLAN IX.

PLANTS.

MATTER.

Parts of the Flower.—The outer cup of the flower is called the calyx.

The inner cup of the flower is called the corolla.

The part or parts in the centre of the flower are called the pistil.

The parts around the pistil and within the corolla are called stamens.

A flower has a calyx, corolla, stamens and pistil.

The parts of the corolla are called petals.

The parts of the calyx are called sepals.

METHOD.

(Each pupil should be supplied with proper specimens.)

Lead pupils to discover that the flower has parts.

Call the attention of the pupils to the calyx and corolla. Have them find corresponding parts in other flowers. Lead them to notice that these two parts are cup-shaped and are called cups.

Next lead them to discover the position of each cup. Tell them that each cup has a name; that the outer cup is called *calyx*, and the inner one *corolla*.

Write both terms on the board and drill in spelling. Have them show many flowers and point out the calyx each time, and tell what is called the calyx. Do the same with the corolla.

Pupils spell all words, tell how the statements should be written, and write on slates.

Lead pupils to state that the calyx is generally green, while the corolla is usually of some other color.

By examining flowers pupils discover a part or parts in the centre of each. Give the term *pistil* and write it on the board. Drill in spelling.

Have pupils find the pistils of many flowers.

Pupils tell what is called the pistil and write the statement on their slates.

By a closer examination pupils are led to discover and state that there are parts around the pistil and within the corolla that do not look like the pistil.

Give the term *stamens* and write on the blackboard. Pupils spell the word and tell what are called stamens. Pupils write as before.

Pupils read the work written on the slates.

The teacher should criticise the work in respect to neatness, capitalization and punctuation.

Pupils should now have practice in finding the parts of flowers.

Have pupils take flowers, point to each part and, as they do so, make a statement similar to the following: This flower has a calyx, corolla, stamens and a pistil.

Place on the pupils' desks monopetalous, lobed monopetalous and polypetalous flowers.

Have them examine the corollas closely and compare them. Pupils discover and state that the corolla in some flowers is in one piece, in others consists of many parts or pieces. Have pupils call these parts *leaves*. Give term *petal* and write on the board. Pupils spell and tell what is called a petal.

Have pupils write on slates.

Have pupils describe the corolla as follows:

The corolla to this flower is in one piece, or the corolla to this flower is divided.

The pansy has five petals, etc.

Pupils should examine and describe the corollas of many flowers.

The same plan should be followed for teaching sepals.

PLAN X.

PLANTS.

MATTER.

Seeds.—The outer parts of the seed are called coats.

The inner part of the seed is called the kernel.

A seed has coats and a kernel.

The part of the kernel that grows is called the embryo.

The starch-like substance which nourishes the embryo in germination is called albumen.

The kernel consists of the embryo and albumen.

METHOD.

A few days previous to giving this lesson the teacher should plant a few seeds and have them well sprouted.

Each child should also be supplied with beans thoroughly soaked.

Review the definition of a seed.

By examining the seeds closely the pupils discover that the seed, as well as the leaf or flower, has parts. Lead them to see that the outer parts protect the inner part and are called coats.

Obtain the term *kernel* by referring to the part of a nut that is eaten. Tell them that the inner part of the seed is called the kernel.

Drill in spelling and have the statements written on the slates.

Have pupils examine many seeds.

Pupils state that the seed has coats and a kernel, and write the statement on slates.

Have pupils examine the kernel closely and state that there are two parts to it.

Remove the seeds from the soil and have pupils examine them. In this way they will discover and state that one part of the kernel grows and forms the plant.

Tell them that the part of the kernel which grows is called the *embryo*. Pupils spell, define, and write the definition on their slates.

In previous lessons pupils have been taught that growth requires food. They can easily be led to see that the embryo has no roots, as the plant has, to take in nourishment from the soil, and that while it is sprouting it must be fed or nourished by something. Lead them to observe that a certain part of the kernel when planted becomes soft and jelly-like, or is changed to sap.

Let them examine Indian corn in the same way and lead them to discover that this substance is starch-like.

The pupils now understand and will state that the kernel has a starch-like substance which nourishes the embryo while sprouting.

Give the term *germinating* for sprouting and from this obtain the term *germination*.

Tell them that this starch-like substance is called *albumen*. Pupils spell, define, and write the definition of albumen on their slates.

PLAN XI.

ANIMALS.—Second Series.

RUMINANTS.

MATTER.

I. Parts of the Cow.—The cow has a large, broad head; a large body covered with hair; short legs and cloven feet.

The cow has a short, thick neck, from which hangs a broad piece of skin called a dewlap.

The cow has hollow horns; a broad naked muzzle; no front teeth in the upper jaw; large front teeth in the lower jaw; large, broad, back teeth in both jaws; and a long, rough tongue.

II. Habits.—The cow eats vegetable food (corn, hay, grass, roots.)

The cow uses her long tongue in getting food.

The cow is slow in movement, and gentle.

III. Uses.—The cow gives milk from which butter and cheese are made.

The flesh is used for food; the skin, for leather; and the hair, for mortar.

METHOD.

I. In giving this lesson the teacher should be supplied with a good picture of a cow; also with a cow's skull, horn, and hoof.

The teacher shows the picture, and pupils tell what it is.

Call the attention of the pupils to the size of the head and obtain the sentence, The cow has a large head.

Next direct the attention of the pupils to the distance from one side to the other and obtain the sentence, The cow has a broad head.

Ask pupils what kind of head the cow has, and obtain the two sentences combined, The cow has a large, broad head.

Pupils repeat the sentence and spell all words. The teacher should write the sentence on the blackboard and have pupils read it.

In a similar way obtain the sentence:

The cow has a large body covered with hair.

Pupils spell and the teacher writes as before.

The pupils are required to notice the length of the legs and make the sentence, The cow has short legs.

Show a cow's hoof; let pupils examine it closely and compare with a horse's hoof.

The pupils say, The cow's hoof is split, parted or divided. The teacher gives the term *cloven* and writes it on the blackboard. Pupils pronounce and spell. Erase the word and have pupils spell and define.

Write as in Matter, I. Pupils read.

Cause pupils to say, The cow has a short, thick neck. First require them to notice the length of the neck and then its thickness.

Next lead pupils to discover that there is a broad piece of skin hanging from the neck, and that this skin laps the dew when the cow is grazing. The teacher now tells the pupils that because it laps the dew it is called a *dewlap*. Pupils learn how to spell dewlap.

Pupils now tell what is called the dewlap, and the teacher writes the sentence on the blackboard.

Show a cow's horn. Let pupils examine it. By looking into it and dropping something into it they discover that the horn is hollow.

Pupils spell the new word and tell what kind of horns the cow has. The teacher writes as before.

Cause pupils to say, The cow has a nose and mouth. Give the term *muzzle*, and write the word on the blackboard. Pupils spell and define the word muzzle.

Pupils discover that there is no hair on the muzzle, or

that it is naked.

Write the statement as in Matter, I.

Show the skull of the cow. Require pupils to examine it closely and discover that there are no front teeth in the upper jaw; that the front teeth in the lower jaw are large; and that there are large, broad, back teeth in both jaws.

Pupils spell all words and the teacher writes as before.

What have we been talking about?

The parts of the cow.

Write this as the subject of the lesson.

Pupils should read the sentences and point out and spell the difficult words.

Erase all work and remove picture and specimens. Give a thorough review.

II. Ask pupils to tell what the cow eats. Many sentences similar to the following will be given:

The cow eats hay. The cow eats grass. The cow eats potatoes. The cow eats corn.

From these obtain the term *vegetable*.

Pupils are led to say that that which the cow eats is food.

Now, because the cow's food is vegetables, what kind of food may we say she eats?

Vegetable food. The cow eats vegetable food.

Pupils should learn how to spell *vegetable*.

Write the sentence on the black-board.

Pupils tell what is called vegetable food.

The teacher talks with pupils about the way in which the cow gets hay, leaves, grass, that are a short distance from her, and obtains the sentence:

The cow uses her long tongue in getting food.

What have we been talking about in this lesson?

About what the cow does. The teacher gives the term *habits*. Pupils learn how to spell the word.

Write the subject of the lesson and require pupils to read.

Erase all work. Pupils give the habits of the cow. Drill on spelling the word *vegetable*.

The plan for carrying on this work will readily suggest itself to the thoughtful teacher.

OUTLINES FOR COMPOSITIONS.

CAUTION.—In writing of animals or plants the tendency with teacher and pupils is to adhere so closely to the scientific descriptions, learned elsewhere, as to make the compositions dry and uninteresting, little better than methodical reproductions of general lessons. This tendency should be carefully avoided.

The plan followed in the study of an animal or plant for classification, though by no means the only, nor indeed always the best, serves well for a plan of a descriptive composition on the same subject; but in its elaboration, while facts and the plan should be closely adhered to, it should be the study of both teacher and pupil to keep the composition free from apparent restraints and to make it smooth, interesting and lifelike.

OUTLINE 1.

- | | | |
|------------|---|---|
| The Camel. | { | I. <i>Introduction</i> .—(Some short anecdote of a camel, which the pupils should be required to find.) |
| | | II. <i>Discussion</i> . { |
| | | <ol style="list-style-type: none"> 1. Noticeable parts of head, trunk and extremities. 2. Characteristic and interesting habits. 3. Characteristics of native country. 4. Adaptation of parts to habits and life in native country. 5. Uses and relative value to man. |
| | | III. <i>Conclusion</i> .—(An anecdote; pleasures and profit attending the study of animals; or any other appropriate closing.) |

OUTLINE 2.

A Book.	{	<i>Introduction.</i> —	{	Appearance { Color, binding, etc. Form { Folio, quarto, etc. Publishers. Author. { Brief biography.
		<i>Discussion.</i> —	{	Subject Matter. { Plan, (Execut'n) Leading characters. Style. Value. { As a literary production. To the reader.
		<i>Conclusion.</i>	{	Relative Value. { As compared with other works by same author. { Brief mention of leading works. As compared with works of other authors { Brief mention of a few of their principal works.

OUTLINE 3.

The Eye.	{	Ball.	{	Humors. { Aqueous. Crystalline Lens. Vitreous.
				Coats. { Sclerotic. Cornea. Choroid, Retina. Iris.
		Pupil.		
		Protecting Organs.	{	Lids. Brows. Lachrymal Glands.

OUTLINE 4.

(This is the outline of a graduation-part.)

<i>The Human Race is Improving Intellectually.</i>	<i>Introduction.</i>	{ (1) Refer to belief somewhat general, that the race is degenerating intellectually ; that there are not so great men now as in times past. (2) Propose to show that this belief is not well-founded ; that the race is improving intellectually.		
	<i>Discussion.</i>	<i>Proofs.</i>	From Literature.	{ 1. Compare Fielding and Dickens—showing the great improvement of the modern novel over that of earlier times. 2. Compare the oral history of the ancients, mingled with superstitious legends, with the clear, methodical, concise histories of the present. 3. Compare Essayists of past ages, even of the Addisonian age, with Carlyle and Emerson—showing the advance made. 4. Show how the growth of mind has given rise to the valuable department of Literary Criticism.
			From Natural Science.	{ 1. Contrast the disadvantages under which Galileo labored with the advantages of Darwin, Spencer, Huxley—the latter having eager multitudes to investigate with and encourage them—showing the great advance in the mental activity of the masses. 2. Show that the people of the present investigate for themselves, and have not beliefs manufactured for them. 3. Show how the masses are benefited by the practical turn many give to the results of scientific investigation. 4. Allude to some useful and important inventions.
			From Political Science.	{ 1. Compare governments of ancient and modern Europe. Show how the masses are learning to govern themselves. Show how the people are beginning to decide great questions. 2. Compare Bismark, Disraeli, Gladstone, Thiers, Sumner, with Frederick, Napoleon (as statesman) and Webster. 3. Show the progress in political freedom. Allude to the ever-changing conditions in European nations. Give cause.
From the Diffusion of Education			{ 1. Compare England with the United States ; Germany with France—to show the effect of universal education. 2. Show the wonderful spread of education within a few years.	
<i>Conclusion.</i>	<i>Principal Opposing Argument Answered.</i>	That Poetry is declining.	{ 1. Show that the true poet must wait for posterity for fame. 2. Show that the contemporaries of Homer, Shakespeare and Milton had little appreciation of these poets as compared with the appreciation in which they are now held. 3. Prophecy that there are modern poets who, when years shall have rolled by, will stand as high as they.	
		{ Summary of proofs. Statement of conclusion.		

DAILY PROGRAMME

—OF—

FIRST GRADE.

MORNING.

Time.	Recitations.	Studies.
9 to 9-10	Opening Exercises—Music.	
" 9-30	C Reading.	{ A Writing Reading Lesson. B Forming Sentences with Letter-Cards.
" 9-50	A Reading.	{ B Reading. C Writing, or Forming Words and Sentences with Letter-Cards.
" 10	Writing.	
" 10-05		Recess.
" 10-30	General Lesson.	
" 10-35		Recess.
" 11	C Number.	{ A and B Copying General Lesson.
" 11-05		Recess. (C Dismissed.)
" 11-20	B Reading.	A Number.
" 11-25	Physical Exercises—Marching.	
" 11-45	A Number.	B Reading.
" 11-55	Examination of Slates.	
	Dismissal.	

AFTERNOON.

1-30		
to 1-45	Language.	
" 2-05	B Reading.	A and C Reading.
" 2-20	C Reading.	{ A Writing. B Number.
" 2-30	Music.	
" 2-35		Recess. (C Dismissed.)
" 2-55	B Number.	A Reading and Number.
" 3-10	A Reading.	B Writing.
" 3-30	Drawing.	
	Dismissal.	

DAILY PROGRAMME

—OF—

THIRD GRADE.

FORENOON.

Time.	Recitations.	Studies.
9 to 9-10	Opening Exercises—Music.	
" 9-35	B Reading.	A Number.
" 10	A Number.	B Number.
" 10-05		Recess.
" 10-30	B Number.	A Reading.
" 10-35		Recess.
" 11	(1) General Lesson.	
" 11-05		Recess.
" 11-30	A Reading.	{ B Reading, and Re- producing General Lesson.
" 11-35		Recess.
" 11-45	Writing.	
" 11-55	Examination of Slates.	
" 12		Dismissal.

AFTERNOON.

1-30		
to 2	Language.	
" 2-20	B Reading.	{ A Reading, and Re- producing General Lesson.
" 2-30	A Number.	B Language.
" 2-35		Recess.
" 2-45	B Number.	A Language.
" 3-05	A Reading.	B Reading.
" 3-10		Physical Exercises.
" 3-30	Drawing.	
" 3-35		Dismissal.

(1) Plants, Human Body, Animals, or Place.

DAILY PROGRAMME

—OF—

SIXTH GRADE.

FORENOON.

Time.	Recitations.	Studies.
9 to 9-15		Opening Exercises.
" 9-35	B Number.	A Number.
" 10	A Number.	B Reading.
" 10-05		Recess.
" 10-30	(1) General Lesson.	
" 10-35		Recess.
" 11	Biography.	
" 11-05		Recess.
" 11-30	Drawing.	
" 11-35		Recess.
" 11-55	B Reading.	A Reading.
" 12		Dismissal.

1-30

AFTERNOON.

to 2	Language.	
" 2-05		Recess.
" 2-30	A Reading.	B Geography.
" 2-35		Recess.
" 3	B Geography.	A Geography.
" 3-05		Recess.
" 3-30	A Geography.	B Number.
" 3-35		Recess.
" 4-10	Writing.	
" 4-15		Dismissal.

(1) Zoölogy, Botany or Physiology.

DAILY PROGRAMME

—OF—

NINTH GRADE.

MORNING.

Time.	Recitations.	Studies.
9 to 9-15	Spelling.	
" 10	Algebra.	
" 10-05		Recess.
" 10-30	Book-keeping.	
" 10-35		Recess.
" 11	B Language.	A Algebra.
" 11-05		Recess.
" 11-30	A Language.	B Language.
" 11-35		Recess.
" 11-55	B History.	A Language.
" 12		Dismissal.

1-30

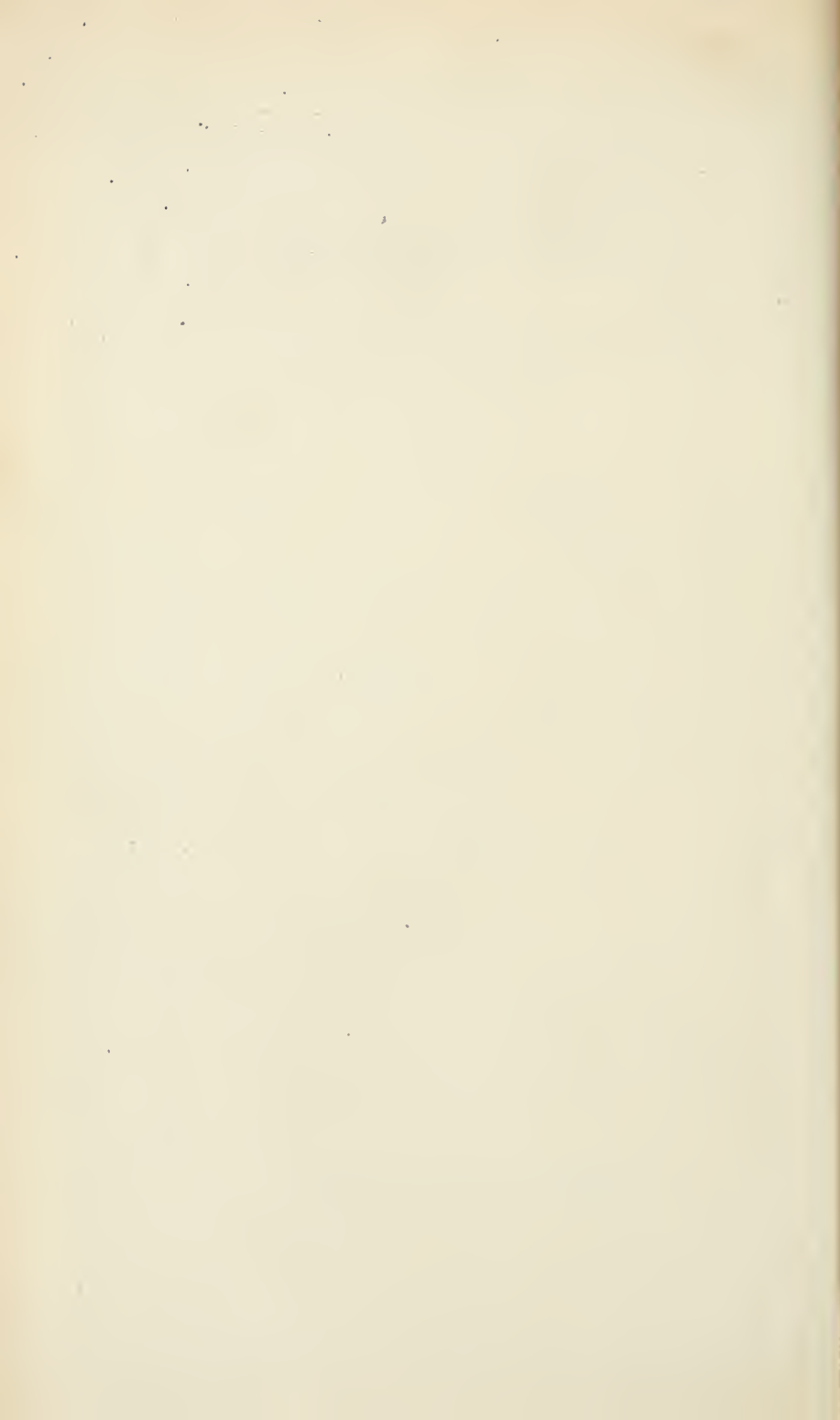
(1) AFTERNOON.

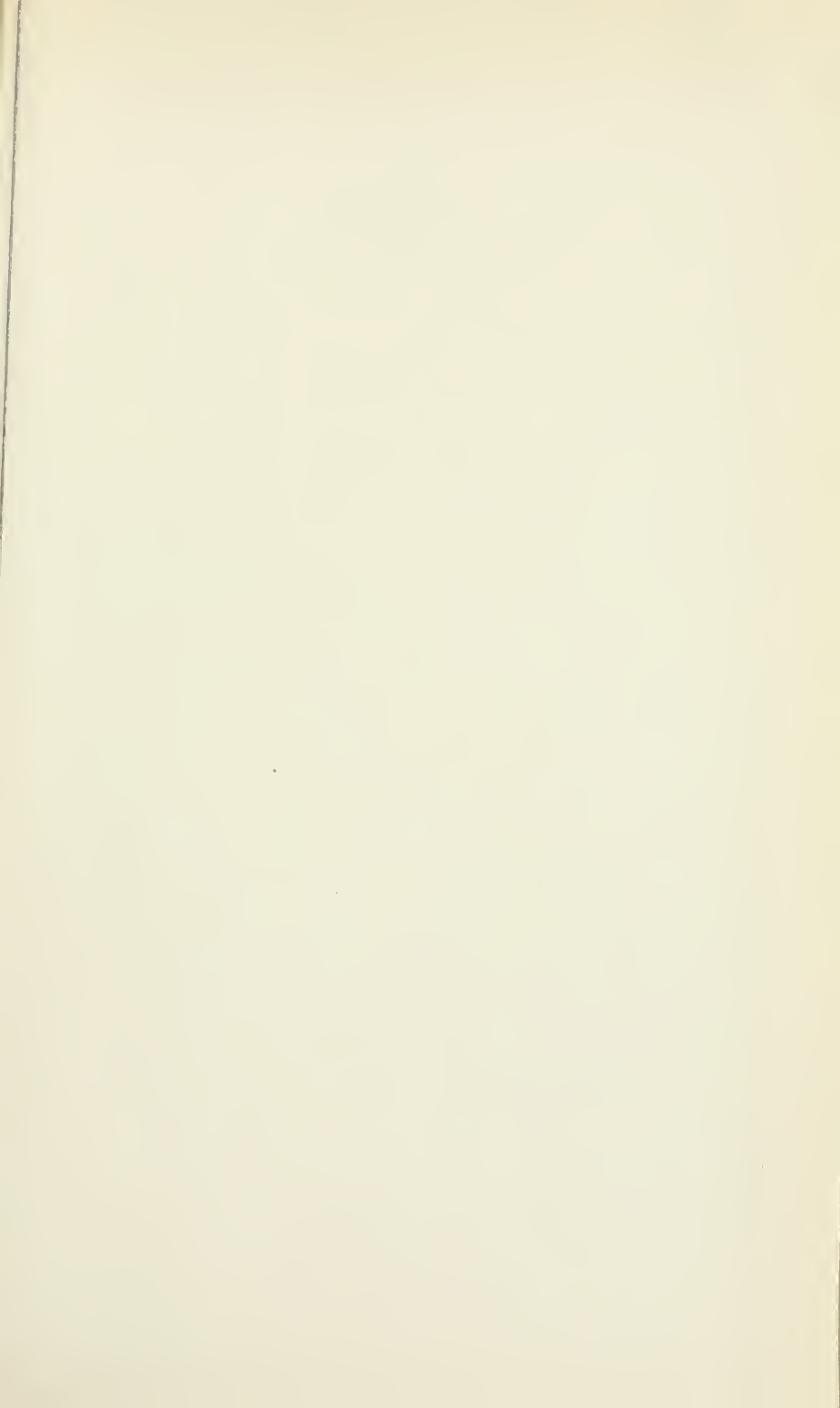
to 2	General Lesson.	
" 2-05		Recess.
" 2-30	A History.	B History.
" 2-35		Recess.
" 3	B Reading.	A History.
" 3-05		Recess.
" 3-30	A Reading.	B Reading.
" 3-35		Recess.
" 4-10	(2 & 3) Natural Science.	
" 4-15		Dismissal.

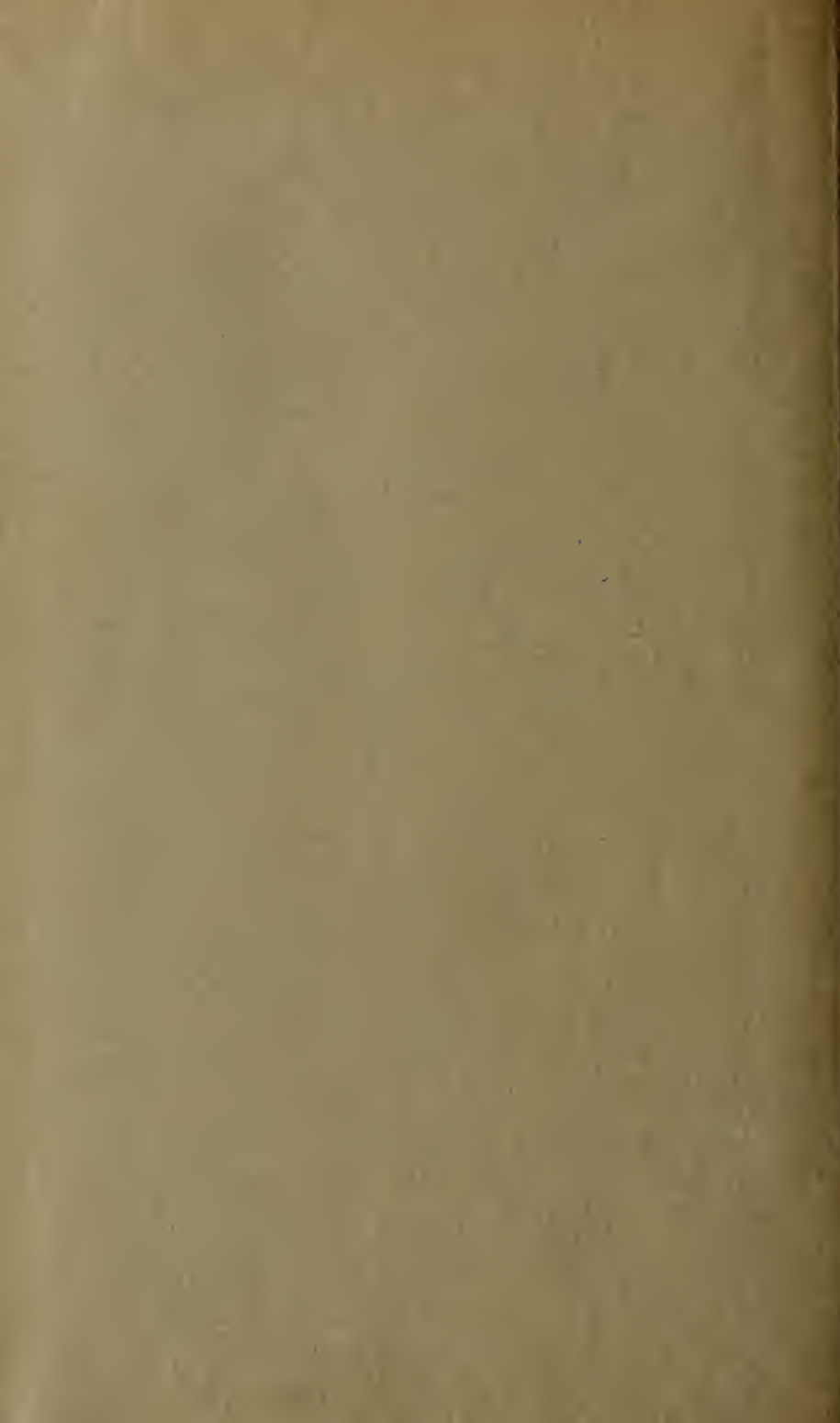
(1) Rhetorical Exercises Friday Afternoon.

(2) Music on Tuesdays and Thursdays.

(3) Physiology, Zoölogy and Botany, one term each.







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